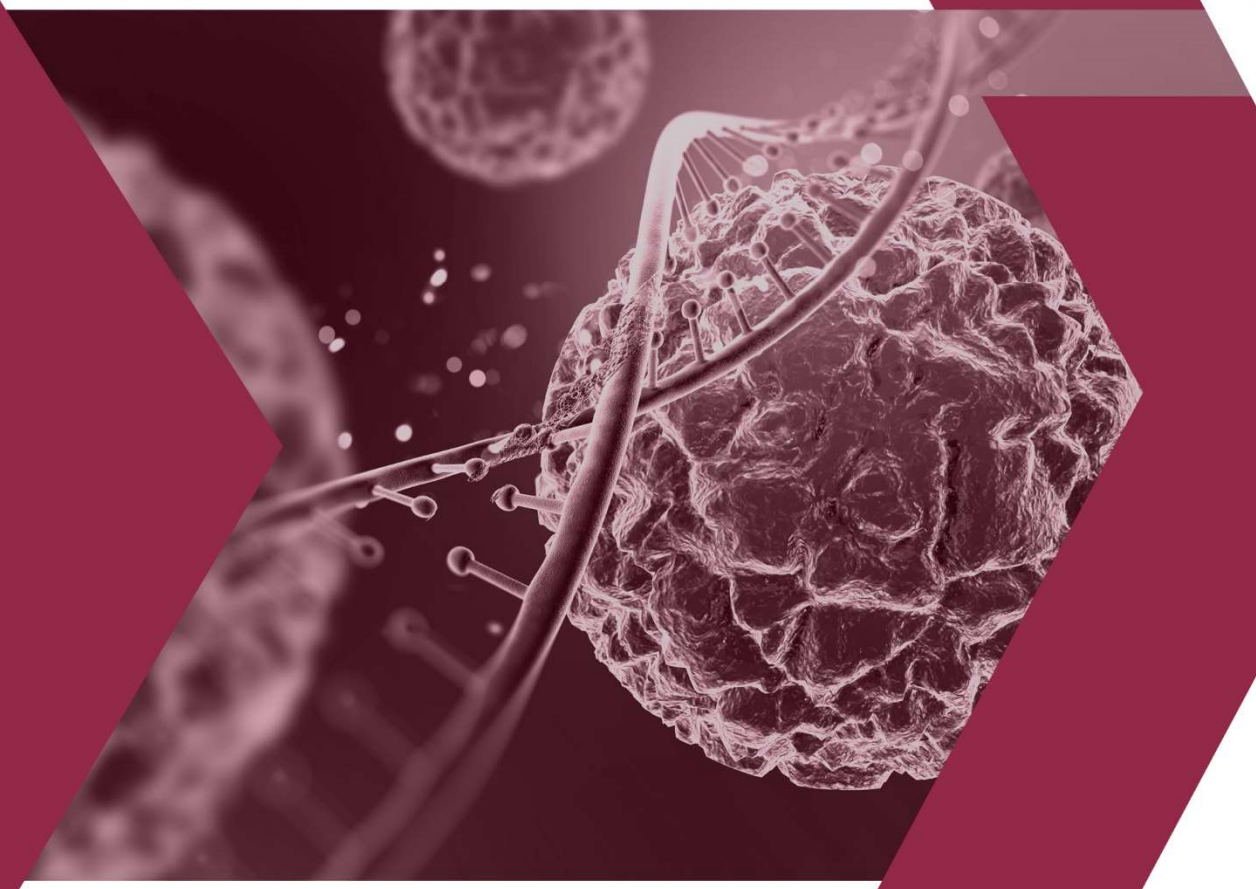


BIOLOGY

E-TECH ACADEMY

NEET

FOR UG STUDENTS

INDEX

BREATHING & EXCHANGE OF GASES

LEVEL-1

1. Aerobic respiration involves

I. external respiration

II. transport of gases

III. internal respiration

IV. cellular respiration

Choose the correct combination of options for the given statements

1) I, II and III 2) II, III and IV

3) I, III and IV 4) All of the above

2. Exchange of gases in man takes place in

1) Trachea 2) Bronchus

3) Alveoli 4) All of these

3. 'XX' is a part of respiratory system that contains C-shaped rings of hyaline cartilage. 'XX' is lined with ciliated, pseudostratified columnar epithelium. Identify 'XX'

1) Nasopharynx 2) Glottis

3) Larynx 4) Trachea

4. Lungs have a large number of narrow tubes called

1) Alveoli

2) Bronchi

3) Bronchioles 4) Tracheae

5. Floating ribs of thoracic cage are

1) 1st to 7th pair 2) 8th to 9th pair

3) 8th to 10th pair 4) 11th to 12th pair

6. Primary site of the gaseous exchange in humans is

1) Lungs

2) Alveoli

3) Bronchus 4) Diaphragm

7. Air entering the lungs is

1) Warm and filtered

2) Contains only oxygen

3) Cool and filtered

4) Enriched with CO_2 and NO_2

8. Given below are four matchings of an animal and its kind of respiratory organ

I. Silver fish – Trachea

II. Scorpion – Book lung

III. Sea squirt – Pharyngeal gills

IV. Dolphin – Skin

The correct matchings are

1) II and IV 2) III and IV

3) I and IV 4) I, II and III

9. State whether the given statements are true or false

I. Respiration in humans is an active process

II. Diaphragm helps in generating the pressure gradient in the lungs

Choose the correct option

1) I - True, II - False 2) I - True, II - True

3) I - False, II - True 4) I - False, II – False

10. Which of the following statement is true regarding the human respiratory system?

1) Tracheal rings are of hyaline cartilage

2) Dorsal side of the thoracic chamber is formed by sternum

3) Expiration occurs when there is negative pressure in the lungs

4) Inspiration occurs when there is positive pressure in the lungs

11. If a large number of people are enclosed in a room, then

1)Oxygen decreases and carbon dioxide increases

2)Oxygen increases and carbon dioxide decreases

3) Both oxygen and carbon dioxide decreases

4) Both oxygen and carbon dioxide increases

12. Site of aerobic respiration in higher organisms is/are

1) Golgi apparatus

2) Mitochondria

3) Both (1) and (2) 4) Lungs

13. Oxygen (O_2) is utilized by an organism to

1) Directly breakdown the nutrient molecules

2) Indirectly breakdown the nutrient molecules

3) Obtain nourishment from the food

4) Burn the organic compounds indirectly

14. Pleural membrane is covering of

1) Heart

2) Lung

3) Liver 4) All of these

15. Which of the following structure is present inside the larynx of the respiratory system?

1) Glottis

2) Epiglottis

3) Vocal cords 4) None of these

16. Which one of the following has the smallest diameter?

1) Right primary bronchus

2) Left primary bronchus

3) Trachea

4) Respiratory bronchiole

17. Movement of the air into and out of the lungs is carried out by

1) Imbibition 2) Pressure gradient

3) Osmosis 4) Diffusion

18. Identify the different parts of the respiratory system in accordance to their location given below

I. Posterior part of the pharynx

II. Present at the glottis

III. In front of oesophagus

Choose the correct option accordingly

1) I-Nasal cavity, II-Larynx, III-Bronchi

2) I-Nasopharynx, II-Epiglottis, III-Wind pipe

3) I-Glottis, II-Larynx, III-Trachea

4) I-Larynx, II-Epiglottis, III-Trachea

19. Vocal cords occur in

1) Pharynx 2) Larynx

3) Glottis 4) Bronchial

20. At which thoracic vertebra does trachea divide into right and left primary bronchi?

1) 5 2) 6 3) 9 4) 4

21. Nasopharynx opens through the …A… of the larynx region into the …B… Choose the correct option for A and B to complete the given NCERT statement

1) A-trachea, B-lungs 2) A-trachea, B-glottis

3) A-glottis, B-lungs 4) A-glottis, B-trachea

22. Identify the component of respiratory system which displays the features given below and choose the correct option

I. Double layered

II. Fluid contained in it reduces the friction on the lung surface

III. Its outer layer is in contact with thoracic wall

IV. Its inner layer is in contact with lungs

1) Visceral layer

2) Peritoneum cavity

3) Visceral organs

4) Pleura

23. Which portion of the human respiratory system is called sound box?

1) Larynx 2) Trachea

3) Nasopharynx 4) Glottis

24. When the nutrients are oxidised without using molecular O_2 called …A… in yearst glucose formed …B.. and CO_2. Endoparasite also respire …C…. It gives low energy.

Choose the correct option for A, B and C

1) A-fermentation, R-ethyl alcohol, C-anaerobically

2) A-fermentation, B-methyl alcohol, C-anaerobically

3) A-fermentation, B-alcohol, C-aerobically

4) A-fermentation, B-ethyl alcohol, C-aerobically

25. The ventilation movements of the lungs in mammals is governed by

1) Diaphragm 2) Coastal muscles

3) Both (1) and (2) 4) None of these

26. O_2 exchange with CO_2 by simple diffusion over the entire body surface takes place in

I. sponges II. Coelenterates III. Flatworms

Select the correct option to complete the given statement

1) I and II 2) II and III

3) I and III 4) All of the above

27. A muscular transverse partition in mammals that separates thorax from abdomen is called

1) Diaphragm 2) Pharynx

3) Stomach 4) Duodenum

28. The total number of lobes and alveoli present in both the lungs of man are

1) 17 and 30 million, respectively

2) 5 and 300 million, respectively

3) 19 and 300 million, respectively

4) 18 and 300 lakh, respectively

29. Tidal volume is

1) Volume of air inspired or expired

2) Additional volume of air, a person can inspire by a forcible inspiration

3) Additional volume of air, a person can expire by a forcible expiration

4) Remaining volume of air in the lungs even after a forcible expiration

30. During inspiration, the diaphragm

1) Expands

2) Shows no change

3) Contracts and flattens

4) Relaxes to become dome-shaped

31. Total lung capacity is

1) Total volume of air accommodated in lungs at the end a forced inspiration

2) RV + ERV + TU + IRV

3) Vital capacity + residual volume

4) All of the above

32. I. Intra pulmonary pressure remains less than the atmospheric pressure.

II. There is negative pressure in the lungs than the atmospheric pressure.

In which of the above two situations inspiration takes place?

Choose the correct option accordingly?

1) Only I 2) Only II 3) Both I and II 4) I or II

33. Why does the air in the nasal cavity get warmed?

1) Because of the presence of many hairs present in nasal cavity

2) Because the nasal cavity has very good blood supply

3) Because the nasal cavity has mucous membrane

4) All of the above

34. Approximate volume of air a healthy man can expire or inspire per minute is

1) 5000 to 6000 mL 2) 6000 to 7000 mL

3) 6000 to 8000 mL 4) 7000 to 9000 mL

35. Arrange the following in the order of increasing volume

I. Tidal volume

II. Residual volume

III. Expiratory reserve volume

IV. Vital capacity

1) I < II < III < IV 2) I < III < II < IV

3) I < IV < III <11 4) I < IV < II < III

36. Residual volume is

1) Lesser than tidal volume

2) Greater than inspiratory volume

3) Greater than vital capacity

4) Greater than tidal volume

37. An …A… in the pulmonary volume …B… the intra pulmonary pressure to less than the atmospheric pressure which forces the air from …C… to move into the lungs, i.e., …D…

Choose the correct options for the blanks A, B, C and D to complete the above statement with reference to NCERT textbook

1) A-increase, B-decrease, C-outside, D-expiration

2) A-decrease, B-increase, C-outside, D-expiration

3) A-decrease, B-increase, C-inside, D-inspiration

4) A-increase, B-decrease, C-outside, D-inspiration

38. Listed below are four respiratory capacities (I-IV) and four jumbled respiratory volumes of a normal human adult.

Respiratory Capacity	Respiratory Volume
I. Residual volume	1200mL
II. Vital capacity	4600 mL
III. Inspiratory reserve volume	3000 mL
IV. Inspiratory capacity	3500 mL

Which one of the following is the correct matching of two capacities and volumes?

1) II 3000 mL, III 4600 mL

2) III 1200 mL, IV 3000 mL

3) IV 3500 mL, I 1200 mL

4) I 4600 mL, II 3500 mL

39. Identify which respiratory structure possesses the following features and choose the correct option accordingly

I. Found in mammals

II. Highly muscular and fibrous partition, elevated towards the thorax like a dome

III. Separates thoracic and abdominal cavity

1) Pleural membrane 2) Phrenic muscle

3) Diaphragm 4) Mediastinum

40. During normal respiration without any effort the volume of air inspired or expired is called

1) Tidal volume 2) Reserve volume

3) Residual volume 4) None of these

41. Pick the correct statement.

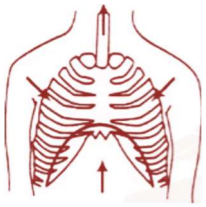
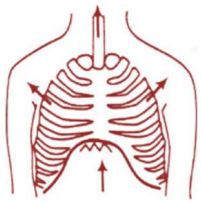
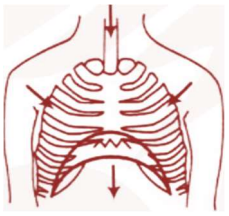
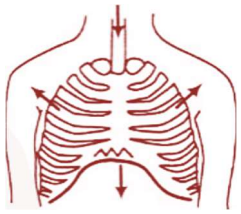
1) The contraction of internal intercostal muscles lifts up the ribs

2) The RBCs transport oxygen only

3) The thoracic cavity is anatomically an air tight chamber

4) Healthy man can inspire approximately 500 mL of air per minute

42. Exhalation is the process of expulsion of air through respiratory tract. Which of the following figure does illustrate the process of exhalation?

1) 
2) 
3) 
4) 

43. A spirometer cannot be used to measure

1) IC
2) RV
3) ERV
4) IPV

44. What is vital capacity of our lungs?

1) Inspiratory reserve volume plus tidal volume
2) Total lung capacity minus expiratory reserve volume
3) Inspiratory reserve volume plus expiratory reserve volume
4) Total lung capacity minus residual volume

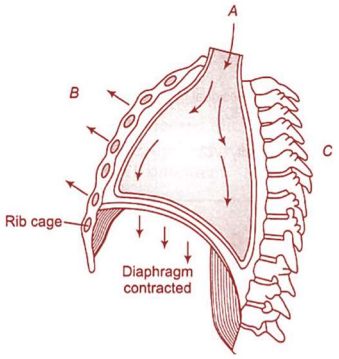
45. Dead space air in man is

1) 500 mL
2) 150 mL
3) 250 mL
4) 1.5 mL

46. How much amount of air can be inspired or expired during normal breathing?

1) 0.5L
2) 2.5L
3) 1.5L
4) 5.5L

47. In the given diagram, identify what is depicted by B and C Choose the correct option



1) A-Air going out from lungs, B-Ribs and sternum relaxed, C-Volume of thorax increased
2) A-Air entering lungs, B-Ribs and sternum relaxed, C-Volume of thorax increased
3) A-Air entering lungs, B-Ribs and sternum raised, C-Volume of thorax increased
4) A-Air going out from lungs, B-Ribs and sternum relaxed, C-Volume of thorax decreased

48. During expiration, the diaphragm becomes

1) Normal
2) Flattened
3) Dome-shaped
4) Oblique

49. The vital capacity of human lung is equal to

1) 500 mL
2) 4600 mL
3) 5800mL
4) 2300 mL

50. After deep inspiration, capacity of maximum expiration of lung is called

1) Total lung capacity
2) Functional residual capacity
3) Vital capacity
4) Inspiratory capacity

51. Arrange the given steps of expiration in the sequence of event occurring first

I. Relaxation of the diaphragm and sternum
II. Reduction of the pulmonary volume
III. Expulsion of air from the lungs
IV. Increase in intra pulmonary pressure

Choose the correct option

1) I → II → III → IV

2) I → II → IV → III

3) IV → III → II → I

4) IV → II → III → I

52. Arrange the given steps by which the pulmonary volume increases in the sequence of events occurring first

I. Contraction of intercostal muscles

II. Lifting up of the ribs

III. Sternum causing an increase in the volume of the thoracic chamber in dorsoventral axis

IV. Contraction of the diaphragm which increases the volume of the thoracic chamber in antero-posterior axis

Choose the correct option

1) I → II → III → IV

2) IV → I → II → III

3) IV → I → III → II

4) I → III → IV → II

53. Additional muscles in the impacts the ability of humans to increase the strength of inspiration and expiration

Complete the given NCERT statement with an appropriate option

1) Chest

2) Diaphragm

3) Abdomen

4) Lungs

54. Factors affecting the rate of diffusion is/are

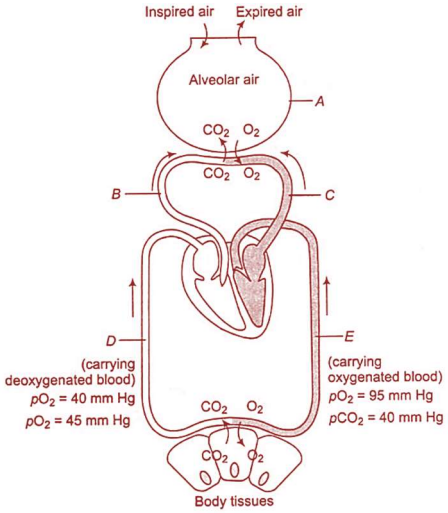
1) Pressure gradient

2) Solubility of gases

3) Thickness of membranes

4) All of these

55. Identify A to E in the given diagram and choose the correct option accordingly



1) A-Alveolus, B-Pulmonary artery, C-Pulmonary vein, D-Systemic vein, E-Systemic arteries

2) A-Alveolus, B-Pulmonary vein, C-Pulmonary artery, D-Systemic vein, E-Systemic arteries

3) A-Alveolus, B-Pulmonary vein, C-Pulmonary artery, D-Systemic arteries, E-Systemic vein

4) A-Alveolus, B-Pulmonary vein, C-Pulmonary artery, D-Systemic arteries, E-Portal vein

56. Respiratory GasAtmospheric Air Alveoli

O_2	159	A
CO_2	03	B

Partial pressure (in mm Hg) of oxygen and carbon dioxide at different part involved in diffusion in comparison to those in atmosphere. Identify A and B and choose the correct option accordingly

1) A-50; B-50 2) A-104; B-40

3) A-40; B-104 4) A-101; B-104

57. In humans, exchange of gases occurs

1) By diffusion

2) Between blood and tissue

3) Between alveoli and pulmonary blood

4) All of the above capillary

58. Which structure of the lungs is directly involved in O_2/CO_2 exchange between air and blood capillary?

1) Bronchi 2) Trachea
3) Alveoli 4) Secondary bronchi

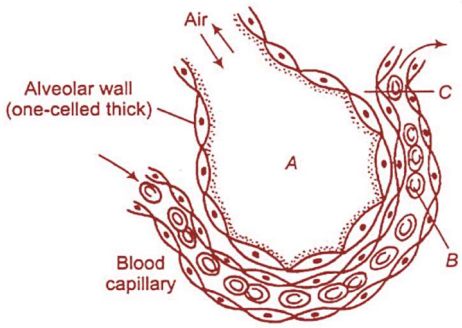
59. The partial pressure of oxygen in the alveolar air is

1) 45 mm Hg 2) 95 mm Hg
3) 104 mm Hg 4) 110 mm Hg

60. Partial pressure of the gas is the pressure contributed by

1) All gases in a mixture
2) Individual gas in a mixture
3) Pressure exerted by atmosphere on gases
4) Atmosphere on O_2 only

61. Identify B and C in the given diagram and choose the correct option accordingly



1) A-Alveolar cavity, B-WBC, C-Capillary wall
2) A-Alveolar cavity, B-RBC, C-Systemic wall
3) A-Alveolar cavity, B-RBC, C-Capillary wall
4) A-Alveolar cavity, B-WBC, C-Systemic wall

62. Exchange of gases in lungs occurs through

1) Simple diffusion 2) Active transport
3) Osmosis 4) Plasmolysis

63. In the diagram given in the previous question number-61, the function performed by A, B and C are as follows

A - Diffusion of O_2 to blood
B - Diffusion of CO_2
C - Exchange of gases takes place

Select among A, B and C which one is correctly matched and choose the correct option accordingly

1) Only A 2) Only B
3) Only C 4) A, B and C

64. Which of the following statements are not correct?

I. Diffusion membrane is made up of 3 layers
II. Solubility of CO_2 in blood is higher than O_2 by 25 times
III. Breathing volumes are estimated by spirometer
IV. High H^+ in blood favours oxygen dissociation

Choose the correct option

1) I and III 2) III and IV
3) I and IV 4) None of these

65. Which of the following statements is not true?

1) The partial pressure of oxygen in deoxygenated blood is 40 mm Hg
2) The partial pressure of oxygen in oxygenated blood is 95 mm Hg
3) The partial pressure of oxygen in the alveolar air is 104 mm Hg
4) The partial pressure of carbon dioxide in deoxygenated blood is 95 mm Hg

66. Partial pressure of O_2 and CO_2 in atmospheric airs compared to those in alveolar air is $\rho O_2 \rho CO_2$

1) Higher Lower 2) Higher Higher
3) Lower Lower 4) Lower Higher

67. Which vein contains the oxygenated blood in humans?

1) Cardiac vein 2) Hepato pancreatic vein

3) Portal vein 4) Pulmonary vein

68. If the level of carboxyhaemoglobin in blood reaches upto……, the functioning of central nervous system is severely affected which results in death.

1) 1 to 2% 2) 0.20 to 0.30%

3) 0.30 to 0.40% 4) 0.1 to 5%

69. Under which condition, dissociation of oxygen from oxyhaemoglobin in tissues occurs?

1) Low ρO_2 2) High ρCO_2

3) High H^+ 4) All of these

70. Dissociation of CO_2 from carbamino haemoglobin takes place when

1) ρCO_2 is less in alveoli and ρO_2 is high

2) ρCO_2 is low and ρO_2 is high in alveoli

3) ρCO_2 is equal to ρO_2 in lungs, i.e., low

4) ρCO_2 is equal to ρO_2 in tissue, i.e., high

71. Which one is the cofactor of carbonic anhydrase?

1) Iron 2) Zinc 3) Copper 4) Magnesium

72. Haemoglobin of the human blood forms a stable complex compound with which of the following gas leading to death?

1) Oxygen 2) Carbon dioxide

3) Carbon monoxide 4) Nitrogen

73. What happens in Hamburger shift?

1) HCO_3 ions move out from plasma and Cl^- ions enters into RBC

2) CO_3 ions move out from plasma and Cl^- ions enters into RBC

3) H^+ ions move out from plasma and Cl^- ions enters into RBC

4) HCO_3 ions move out from plasma and H^+ ions enters into RBC

74. Haemoglobin (H2) is a

1) Reproductive pigment

2) Respiratory pigment

3) Carbohydrate

4) Fat

75. Dissociation curve of haemoglobin is

1) Sigmoid 2) Parabolic

3) Straight line 4) Hyperbolic

76. What is Bohr's effect?

1) Raise of ρCO_2 or fall in pH decreases the oxygen affinity of haemoglobin

2) Decrease of ρCO_2 or fall in pH decreases the oxygen affinity of haemoglobin

3) Raise of ρCO_2 or increase in pH decreases the oxygen affinity of haemoglobin

4) Shifting of the oxygen-haemoglobin curve to left

77. $CO_2 + H_2O \overset{A}{\rightleftharpoons} H_2CO_3 \overset{B}{\rightleftharpoons} HCO_3^- + H^+$

Name the enzymes A and B in the above equation

1) A-Carbonic anhydrase, B-Carbonic hydratase

2) A-Carbonic hydratase, B-Carbonic anhydrase

3) A-Carbonic anhydrase, B-Carbonic anhydrase

4) A-Carbonic hydratase, B-Carbonic hydratase

78. Oxyhaemoglobin in the blood is formed when

1) O_2 binds with WBC

2) O_2 binds with RBC

3) O_2 binds with Iron 4) O_2 binds with plasma

79. When temperature decreases oxyhaemoglobin curve will become

1) More steep 2) Straight

3) Parabola 4)All of these

80. During oxygen transport, the oxyhaemoglobin at the tissue level liberates oxygen to the cells because

1) O_2 concentration is high and CO_2 is low

2) O_2 concentration is low and CO_2 is high

3) O_2 tension is low and CO_2 tension is high

4) O_2 tension is high and CO_2 tension is low

81. Which of the following equation is correct?

1) $KHbO_2 + H^+ \underset{RBC}{\rightleftharpoons} Hb + K + H_2O$

2) $Hb + O_2 \underset{\text{Dissociation in lungs}}{\overset{\text{Association in tissues}}{\rightleftharpoons}} HbO_2$

3) $Na^+ + HCO_3^- \underset{\text{Erythrocyte}}{\rightleftharpoons} NaHCO_3$

4) $HbO_2 \underset{\text{Association in lungs}}{\overset{\text{Dissociation in tissues}}{\rightleftharpoons}} Hb + O_2$

82. Almost same ρCO_2 in humans is found in

1) Oxygenated blood and tissues

2) Deoxygenated blood and oxygenated blood

3) Deoxygenated blood and tissues

4) All of the above

83. Binding of O_2 with haemoglobin is primarily depended upon

I. partial pressure of O_2

II. partial pressure of CO_2

III. hydrogen ion concentration

IV. temperature Choose the correct option

1) I, II and IV 2) II, III and IV

3) I, III and IV 4) All of these

84. Although much carbon dioxide is carried in blood, yet blood does not become acidic because

1) CO_2 is continuously diffused through the tissues and is not allowed to accumulate

2) CO_2 combines with water to form H_2CO_3, which is neutralized by Na_2CO_3

3) In CO_2 transport, blood buffers play an important role

4) CO_2 is absorbed by leucocytes

85. Exchange of O_2 and CO_2 between the blood and tissue is based on

1) Pressure/concentration gradient

2) Inspiratory capacity

3) Osmotic gradient

4) Tidal volume

86. Haemoglobin is having maximum affinity with

1) Carbon dioxide 2) Carbon monoxide

3) Oxygen 4) Ammonia

87. Chloride shift occurs in response to

1) HCO^- 2) K^+ 3) H^+ 4) Na^+

88. Which of the following statements are true/false?

I. The blood transports carbon dioxide comparatively easily because of its highest solubility.

II. Approximately 8.9% of carbon dioxide is transported being dissolved in the plasma of blood.

III. The carbon dioxide produced by the tissues, diffuses passively into the blood stream and passes into red blood corpuscles and react with water to formH_2CO_3.

IV. The oxyhaemoglobin (HbO_2) of the erythrocytes is basic.

V. The chloride ions diffuse from plasma into the erythrocytes to maintain ionic balance.

1) I, III and V are true, II and IV are false

2) I, III and V are false, II and IV are true

3) I, II and IV are true, III and V are false

4) I, II and IV are false, III and V are true

89. I. Increased partial pressure of O_2

II. Increased partial pressure of CO_2

III. Increased partial pressure of H^+

IV. Decreased partial pressure of O_2

All the above situations favours the dissociation of oxyhaemoglobin except

1) I and II 2) II and III

3) I and IV 4) Only I

90. ρCO_2 is higher in tissues due to

1) Anabolism

2) Catabolism

3) Building up of carbohydrates

4) Building up of proteins

91. Which is called Hamburger shift?

1) Hydrogen shift 2) Bicarbonate shift

3) Chloride shift 4) Sodium shift

92. Which of the following conditions are found in the alveoli of lungs?

I. high ρO_2 II. LowρCO_2

III. high ρCO_2 IV. low ρO_2

V. low H+ VI. High H^+

Choose the correct option

1) I, III and V 2) III, IV and VI

3) I, IV and VI 4) I, II and V

93. By which mechanism, oxygen is transported from lungs to cells?

1) Diffusion 2) Facilitated diffusion

3) Transpiration 4) Osmosis

94. Why carbon monoxide (CO) poisonous for man?

1) It affects the nerves of the lungs

2) It affects the diaphragm and intercostals muscles

3) It reacts with oxygen reducing percentage of oxygen in air

4) Haemoglobin combines with carbon monoxide instead of oxygen and the product cannot dissociate

95. Every 100 mL of deoxygenated blood delivers approximately?

1) 3 mL of CO_2 2) 2 mL of CO_2

3) 4 mL of CO_2 4) 1 mL of CO_2

96. Receptors associated with the aortic arch and carotid artery can recognize the changes in .A. and H+ concentration and send necessary signals to the …B… for remedial actions Select the right choice for A and B to complete the given NCERT statement

1) A-OH^-; B-rhythm centre

2) A-O_2; B-rhythm centre

3) A-CO_2; B-rhythm centre

4) A-blood circulation; B-rhythm

97. Which part of the brain is called respiratory rhythm centre?

1) Cerebellum region 2) Brain stem region

3) Medulla region 4) Temporal region

98. The breathing centre initiates the ventilation in response to

1) Increase of air pressure

2) Decrease of air pressure

3) Increase of CO_2 in arterial blood

4) Increase of O_2 in arterial blood

99. Rate of breathing is controlled by

1) The amount of freely available oxygen

2) Carbon dioxide

3) Muscular functions of the body

4) None of the above

100. Human beings have a significant ability to maintain and moderate the respiratory rhythm to suit the demands of the body tissues. This is achieved by

1) Arterial system 2) Systemic vein system

3) Neural system 4) Cardiac system

101 Severe Acute Respiratory Syndrome (SARS)

1) Is caused by a variant of Pneumococcus pneumoniae

2) Is caused by a variant of the common cold virus (corona virus)

3) Is an acute form of asthma

4) Affects non-vegetarians much faster than vegetarians

102 Two friends are eating together on a dining table. One of them suddenly starts coughing. while swallowing some food. This coughing would have been due to improper movement of

1) Diaphragm 2) Neck

3) Tongue 4) Epiglottis

103. Hiccup occurs due to

1) Contraction of the air passage

2) Contraction of the diaphragm

3) Extension of the abdomen

4) Extension of the lungs

104. When the oxygen supply to the tissue is inadequate, the condition is

1) Dyspnea 2) Hypoxia

3) Asphyxia 4) Apnea

105. One of the major cause of emphysema is

1) Pollution 2) Smog

3) Cigarette smoking 4) Sanitary condition

106. Emphysema is a chronic disorder which is caused due to

1) Damaged trachea

2) Damaged nostrils

3) Damaged alveolar walls

4) Damaged lungs

107. Which of the following changes usually tends to occur in plain dwellers when they move to the high altitudes?

I. Increased breathing rate

II. Increased RBC production

III. Increased WBC production

IV. Increased thrombocyte count

Choose the correct option

1) I and II 2) III and IV

3) I and IV 4) I and II

108 Which two of the following changes (I-IV) usually tend to occur in the plain dwellers when . they move to high altitudes (3,500 m or more)?

I. Increase in red blood cell size.

II. Increase in red blood cell production.

III. Increased breathing rate.

IV. Increase in thrombocyte count.

Changes occurring are

1) I and III 2) III and IV

3) I and IV 4) I and II

109. Tobacco smoke contains carbon monoxide, which

1) Reduces the oxygen-carrying capacity of

2) Causes gastric ulcers blood

3) Raises blood pressure

4) Is carcinogenic

110. The oxygen toxicity is related with

1) Blood poisoning

2) Collapsing of alveolar walls

3) Failure of ventilation of lungs

4) Both (1) and (2)

111. Hypoxia is caused due to

1) Lesser O_2 in atmosphere

2) Lesser RBC in blood

3) Lesser CO_2 in atmosphere

4) Both (1) and (2)

112. Asthama is caused by

1) Infection in the lungs

2) Infection in the trachea

3) Infection of the glottis

4) Spasm in the bronchioles and bronchi

LEVEL-1 KEY									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
4	3	4	3	4	2	1	4	3	1
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
1	2	2	3	1	4	2	2	2	1
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
4	4	1	4	3	4	1	2	1	3
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
4	3	2	3	2	4	4	3	3	1
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
3	1	2	4	2	1	3	3	2	3
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
2	2	3	4	1	2	4	3	3	2
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
3	1	4	4	4	1	4	1	4	2
71	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**
2	3	1	2	1	1	3	2	1	3
81	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**
4	3	4	3	1	2	1	1	4	2
91	**92**	**93**	**94**	**95**	**96**	**97**	**98**	**99**	**100**
3	4	1	4	3	3	3	3	4	3
101	**102**	**103**	**104**	**105**	**106**	**107**	**108**	**109**	**110**
2	4	2	2	3	3	4	1	1	3
111	**112**								
4	4								

LEVEL-2

1. Which of the following anatomical structure is not the part of conducting zone of respiratory tract?

1) Pharynx 2) Nasal cavity

3) Alveoli 4) Bronchi

2. Pneumotaxic centre primary controls the switch off point of inspiration. When this signal is strong, which of the following will not occur?

1) Shortening in inspiration time

2) Increase in rate of breathing

3) Complete filling of lungs

4) Shortening in expiration time

3. Select the correct statement about oxygen transport in blood

1) During normal activity, a molecule of haemoglobin returning to the lungs carries one molecule of oxygen

2) During acidosis, haemoglobin is able to carry oxygen more efficiently

3) Increased BPG levels in the red blood cell enhance oxygen carrying capacity of blood

4) Foetal haemoglobin has higher affinity for oxygen in comparison to maternal haemoglobin

4. The nasal cavity serves all of the following functions, except

1) As a passageway for air movement

2) As initiator of the cough reflex

3) Warming and humidifying the air

4) Cleansing the air

5. Which of the following is not found in the right king?

1) Superior lobe 2) Cardiac notch

3) Horizontal fissure 4) Oblique fissure

6 Which respiratory associated muscles would contracted if you blow up a balloon?

1) Diaphragm contracts and internal intercostal muscles would relax

2) External intercostal muscle contract and phrenic muscles would contract

3) Internal intercostal and abdominal muscle would contract

4) Internal intercostal muscles and external intercostal muscles would contract

7. Which of the following is not a stimulus for breathing?

1) Rising CO_2 levels

2) Rising blood pressure

3) Arterial ρO_2 below 60 mm of Hg

4) Change in pH of arterial Wood

8. The amount of air that can be inspired above the tidal volume is called

1) Inspiratory capacity

2) Residual volume

3) Functional residual capacity

4) Inspiratory reserve volume

9. Read the following statements

(A) CO_2 accumulation in the blood is associated with decrease in pH.

(B) More CO_2 dissolves in the blood plasma than earned r RBC.

(C) 100 ml of blood can transport about 3 ml of CO_2 in the form of bicarbonate

(D) CO_2 concentration in the blood is decreased by hyperventilation.

Consider the four statements (A-D) select the correct option stating which ones is True (T) and which ones is False (F)

	A	B	C	D
1)	T	F	F	T
2)	T	F	T	T
3)	T	F	T	F
4)	F	T	T	F

10. Which of the following is not a factor that promotes oxygen association and dissociation with haemoglobin?

1) Partial pressure of oxygen

2) Temperature

3) H' concentration

4) Number of RBC

11. How is the bulk of CO_2 is carried in the blood?

1) As potassium bicarbonate

2) Dissolved form in plasma

3) As sodium bicarbonate

4) As carbamiriohemoglobin

12. Which layer of an artery contains endothelium?

1) Tunica externa 2) Tunica adventia

3) Tunica media 4) Tunica intima

13. Rate of diffusion of CO_2 is 20 times higher than O2. as it depends upon

1) Solubility of gases

2) Partial pressure

3) Thickness of membrane

4) All of these

14. RBCs contain a very high concentration of the enzyme X' and minute quantities of same is present in the plasma too. This enzyme facilitates the following reaction in both directions

$CO_2 + H_2O \overset{x}{\Leftrightarrow} H_2CO_3 \overset{x}{\Leftrightarrow} H_2CO_3^- H^+$ Enzyme X" is

1) Carbonic dehydrase

2) Carbonic dehydrogenase

3) Carboxy peptidase

4) Carbonic anhydrase

15. Normal breathing in humans is _A_breathing while forceful breathing is_B_breathing as the visible movements are mainly due to contractions of x_and_y_muscles. The correct set of options which fills up all the blanks is

	A	B	X	Y
1)	Abdominal	Thoracic	Diaphragm	Intercostal
2)	Thoracic	Abdominal	Intercostal	Diaphragm
3)	Thoracic	Thoracic	Diaphragm	Diaphragm
4)	Abdominal	Thoracic	Intercostal	Intercostal

16. Ventral group of neurons in medulla get stimulated so that breathing rate will increase automatically when

1) The blood pH falls or acidity increases
2) The amount of CO_2 in the blood decreases
3) The blood pH increases or acidity decreases
4) Complete saturation of haemoglobin occurs

17. During swallowing, the entry of food in the trachea triggers a strong cough, forcing the food out of trachea immediately Normally the entry of food in trachea is prevented by

1) Epiglottis
2) Uvula
3) Tongue
4) Labial frenulum

18. The allergic reaction which affects the respiratory tract and is characterized by difficulty in breathing and wheezing due to inflammation of bronchi is

1) Bronchitis
2) Asthma
3) Emphysema
4) Pneumonia

19. Which of the following factors can cause an increase in the P_{50} value of haemoglobin or a right shift in the Oxy-haemoglobin dissociation curve?

a) Increase in ρCO_2
b) Decrease in pH
c) Increase in temperature
d) Decrease in level of DPG

1) (a) & (c) only 2) (b) & (d) only
3) (a) (c) & (d) 4) (a), (b) & (c)

20. Atelectasis is an abnormal condition of lungs which can occur due to

1) Decrease in surfactant level in the alveoli
2) Destruction of type-II alveolar cells
3) Hydrothorax. pneumothorax or haemothorax
4) All of these

21. The chloride shift is the process of CI" ions moving into the RBCs. It occurs at the site of_ during_from/in the blood.

1) Pulmonary capillaries, unloading of O_2
2) Systemic capillaries, unloading of O_2
3) Systemic capillaries, unloading of CO_2
4) Pulmonary capillaries, loading of O_2

22 The pulmonary volumes and capacities which can not be measured through a spirometer are

(a) RV (b) FRC (c) VC (d) ERV
(e) IRV

1) (a), (b). (d) & (e) 2) (b), (c), (d) & (e)
3) (a), (b) 4) (a), (b). (c)

23. The foetal haemoglobin is different from adult haemoglobin in humans because

1) Foetal haemoglobin has more O_2 binding capacity due to presence of iron in ferric form
2) Foetal haemoglobin has less O_2 binding capacity due to presence of only two globin

protein chains

3) Foetal haemoglobin has lesser affinity for 2, 3-BPG than adult haemoglobin, and its pM value is lower

4) Foetal haemoglobin has higher pM value than adult haemoglobin at normal levels of O_2, CO_2, H^+ and DPG

24. Caisson's disease/bends is the condition of

1) Formation of nitrogen bubbles in the blood due to rapid decompression during ascent in deep sea divers

2) Nausea, fatigue, palpitations and headache at higher altitudes

3) Presence of excess pleural fluid in pleural cavity i.e. pleurisy

4) Fibrosis of lungs associated with occupational hazards

25. Which of the following set of cartilages of larynx are hyaline in nature?

1) Thyroid and Epiglottis

2) Epiglottis and Cricoid

3) Thyroid and Cricoid

4) Epiglottis and Arytenoid

26. Which group of animals respire through lungs?

1) Earthworm and insects

2) Sponges, coelenterates and flatworms

3) Fishes and aquatic arthropods

4) Reptiles, birds and mammals

27. Skin of man cannot act as respiratory organ because

1) It is dry

2) It is not thin

3) It is not permeable to O_2 and CO_2

4) All of these

28. What is the function of respiratory part of human respiratory system?

1) It clears the incoming air from foreign particles

2) It brings the temperature of air upto the body temperature

3) It transports the atmospheric air

4) It exchanges O_2 and CO_2 between blood and atmospheric air

29. Ventrally and laterally, the thoracic chamber is formed by

1) Diaphragm and sternum respectively

2) Ribs and sternum respectively

3) Sternum and ribs respectively

4) Vertebral column and diaphragm respectively

30. Adam's apple is another name for

1) Sound box in birds

2) Sound box in man

3) Epiglottis

4) Thyroid cartilage

31. Ring like cartilage of larynx is known as

1) Thyroid cartilage

2) Arytenoid cartilage

3) Cricoid cartilage

4) Cartilage of Santorini

32. Which of the following prevents collapsing of trachea?

1) Muscles 2) Diaphragm

3) Ribs 4) Cartilaginous rings

33. Total number of alveoli in the human lungs has been estimated to be approximately

1) 100 million

2) 300 million

3) 125 million

4) 300 bilion

34. In humans, oblique fissure is present in

1) Right lung 2) Left lung

3) Both of these 4) None of these

35. A pair of external nostrils present in humans opens out

1) Below the upper lips

2) Above the upper lips

3) Between upper and lower lips

4) Above the larynx

36. During inspiration, the volume of thoracic cavity increases because of

1) Contraction of diaphragm and external intercostal muscles

2) Relaxation of diaphragm and external intercostal muscles

3) Contraction of diaphragm and relaxation of external intercostal muscles

4) Relaxation of diaphragm and contraction of external intercostal muscles

37. Volume of thoracic chamber increases in anteroposterior and dorso-ventral axis in rabbit by

1) Contraction of diaphragm and external intercostal muscles respectively

2) Relaxation of diaphragm and external intercostal muscles respectively

3) Relaxation of diaphragm and abdominal muscles respectively

4) Contraction of abdominal muscles and relaxation of external intercostal muscles respectively

38. Which instrument helps in clinical assessment of pulmonary functions?

1) Sphygmomanometer 2) Stethoscope

3) Spirometer 4) Electrocardiograph

39. Expiration occurs due to

1) Relaxation of diaphragm and external intercostal muscle

2) Contraction of internal intercostal muscles and diaphragm

3) Relaxation of abdominal and internal intercostal muscles

4) Contraction of diaphragm and relaxation of abdominal muscles

40. What happens to the volume of pulmonary cavity when there is an increase in the volume of thoracic chamber?

1) It decreases

2) It increases

3) It remains same

4) First decreases and then increases

41. Diaphragm is a dome-shaped muscular structure which separates

1) Coelomic cavity from pelvic cavity

2) Pleural cavity from thoracic cavity

3) Thoracic cavity from abdominal cavity

4) Pelvic cavity from abdominal cavity

42. What happens when pressure within the pulmonary cavity is higher than the atmospheric pressure?

1) Inhalation of air

2) Expulsion of air

3) No inhalation and expulsion of air occurs

4) Lungs inflate and rupture

43. An additional volume of air. a person can inspire by a forceful inspiration is known as

1) Inspiratory capacity

2) Expiratory capacity

3) Expiratory reserve volume

4) Inspiratory reserve volume

44. Volume of air that remains in the lungs after normal expiration is

1) ERV + RV 2) IRV + RV

3) RV + IRV + ERV 4) TV

45. If a person exhales out forcefully by applying all his efforts. What will the pulmonary volume inhaled by him immediately under normal condition without applying any extra effort?

1) TV + IRV 2) TV only

3) TV + ERV 4) TV + IRV + ERV

46. Solubility of CO_2 is_times higher than that of O_2.

1) 40-45 2) 20-25 3) 100 – 2004) 200 – 300

47. What are the characteristics of alveoli?

1) Very thin, irregular walled and highly vascularised

2) Thick and smooth membrane

3) Network of blood capillaries and thick-waled

4) Thick, regular walled and lack of blood vessels

48. What is the value of ρO_3 in alveoli and tissues respectively?

1) 104 mm Hg and 150 mm Hg

2) 45 mm Hg and 0.3 mm Hg

3) 104 mm Hg and 40 mm Hg

4) 95 mm Hg and 159 mm Hg

49. Which are the three main layers that form the diffusion membrane?

1) Thin squamous epithelium of alveoli, basement membrane of bronchioles and basement substance

2) Thin squamous epithelium of alveoi, endothelium of alveolar capillaries and the basement substance

3) Basement substance, cuboidal epithelium of alveoli and stratified epithelium of bronchiole

4) Ciliated epithelium of trachea, endothelium of capillaries and basement substance

50. Which of the following is not a characteristic of respiratory surface?

1) Thin, permeable to gases

2) Extensive

3) Least vascular

4) Moist

51. What is the percentage of O_2 transported in dissolved form in plasma?

1) About 7%

2) About 3%

3) About 20-25% 4) About 15%

52. How many O_2 molecules can bind with single molecule of Hb?

1) 8 2) 6

3) 4 4) 4.5

53. To which part of Hb, CO_2 binds?

1) Haem

2) Amino group of globin

3) Iron of haem group

4) Carboxy group of globin

54. Which of the following condition is not responsible for shifting the curve towards left?

1) High ρO_2

2) Low ρCO_2

3) Low temperature

4) High H^+ ion concentration

55. Which factors favour the binding of CO_2 with Hb in tissues?

1) High ρCO_2 and high ρO_2

2) Low ρCO_2 and high ρO_2

3) Low ρCO_2 and low ρO_2

4) High ρCO_2 and low ρO_2

56. In mature mammalian erythrocytes, the respiration is

1) Aerobic
2) Anaerobic
3) Sometimes aerobic and sometimes anaerobic
4) Absent

57. The amount of oxygen transported to tissues by one litre of blood under strenous condition is approximately

1) 5 ml 2) 50 ml 3) 15 ml 4) 150 ml

58. Pneumotaxic centre can moderate the functions of respiratory rhythm centre by

1) Reducing the duration of inspiration
2) Increasing the duration of inspiration only
3) First increasing and then reducing the duration of expiration
4) Increasing the duration of expiration only

59. A chronic disorder in which alveolar walls are damaged due to excessive cigarette smoking is

1) Asthma 2) Emphysema
3) Silicosis 4) Bronchitis

60. Which of the following is not a symptom of asthma?

1) Difficulty in breathing
2) Breathing noisily / wheezing
3) Alveolar walls are damaged
4) Inflammation of bronchi and bronchioles

LEVEL-2 KEY

1	2	3	4	5	6	7	8	9	10
3	3	4	2	2	3	2	4	2	4
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
3	4	4	4	1	1	1	2	4	4
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
2	3	3	1	3	4	4	4	3	4
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
3	4	2	3	2	1	1	3	1	2
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
3	2	4	1	3	2	1	3	2	3
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
2	3	2	4	4	2	4	1	2	3

LEVEL-3(PREVIOUS YEARQUESTIONS)

1. Select the correct statement.

1) Expiration is initiated due to contraction of diaphragm **[NEET-2019 (Odisha)]**

2) Expiration occurs due to external intercostal muscles.

3) Intrapulmonary pressure is lower than the atmospheric pressure during inspiration.

4) Inspiration occurs when atmospheric pressure is less than intrapulmonary pressure.

2. The maximum volume of air a person can breathe in after a forced expiration is known as

1) Total Lung Capacity **[NEET-2019 (Odisha)]**

2) Expiratory Capacity

3) Vital Capacity

4) Inspiratory Capacity

3. Tidal Volume and Expiratory Reserve Volume of an athlete is 500 mL and 1000 mL. respectively. What will be his Expiratory Capacity if the Residual Volume is 1200 mL?

1) 1500 mL **[NEET-2019]**

2) 1700 Ml

3) 2200 mL

4) 2700 mL

4. Which of the following options correctly represents the lung conditions in asthma and emphysema. respectively7 [NEET-2018]

1) Inflammation of bronchioles: Decreased respiratory surface

2) Increased number of bronchioles; Increased respiratory surface

3) Decreased respiratory surface; Inflammation of bronchioles

4) Increased respiratory surface; Inflammation of bronchioles

5. Match the items given in Column I with those in Column II and select the correct option given below [NEET-2018]

	Column I	Column II
a.	Tidal volume	i. 2500 - 3000 mL
b.	Inspiratory Reserve	ii. 1100 - 1200 mL volume
c.	Expiratory Reserve	iii. 500 - 550 mL volume
d	Residual volume	iv. 1000-1100 mL abed

	a	b	c	d
1)	iii	ii	i	iv
2)	iii	i	iv	ii
3)	v	iii	ii	i
4)	i	iv	ii	iii

6. Which of the following is an occupational respiratory disorder? [NEET-2018]

1) Anthracis 2) Silicosis

3) Emphysema 4) Botulism

7. Lungs are made up of air-filled sacs the alveoli. They do not collapse even after forceful expiration, because of [NEET-2017]

1) Residual Volume

2) Inspiratory Reserve Volume

3) Tidal Volume

4) Expiratory Reserve Volume

8. The partial pressure of oxygen in the alveoli of the lungs is (NEET(Phase-2) 2016)

1) Equal to that in the blood

2) More than that in the blood

3) Less than that in the blood

4) Less than that of carbon dioxide

9. Lungs do not collapse between breaths and some air always remains in the lungs which can never be expelled because

(NEET(Phase-2) 2016)

1) There is a negative pressure in the lungs

2) There is a negative intrapleural pressure pulling at the lung walls

3) There is a positive intrapleural pressure

4) Pressure in the lungs is higher than the atmospheric pressure

10. Name the chronic respiratory disorder caused mainly by cigarette smoking [NEET-2016]

1) Respiratory alkalosis

2) Emphysema

3) Asthma

4) Respiratory acidosis

11. Reduction in pH of blood will [NEET-2016]

1) Release bicarbonate ions by the liver

2) Reduce the rate of heart beat

3) Reduce the blood supply to the brain

4) Decrease the affinity of hemoglobin with oxygen

12. Asthma may be attributed to [NEET-2016]

1) Accumulation of fluid in the lungs

2) Bacterial infection of the lungs

3) Allergic reaction of the mast cells in the lungs

4) Inflammation of the trachea

13. When you hold your breath, which of the following gas changes in blood would first lead to the urge to breathe? [AJPMT-2015]

1) Rising CO_2 and falling O_2 concentration

2) Falling O_2 concentration

3) Rising CO_2 concentration

4) Falling CO_2 concentration

14. Approximately seventy percent of carbon-dioxide absorbed by the blood will be transported to the lungs [AIPMT-2014]

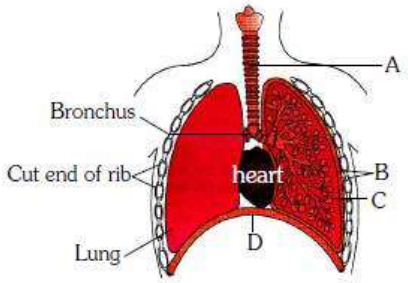
1) As bicarbonate ions

2) In the form of dissolved gas molecules

3) By binding to R.B.C

4) As carbamino – haemoglobin

15. The figure shows a diagrammatic view of human respiratory system with labels A. B. C. and D Select the option which gives correct identification and main function and/or characteristic. [NEET-2013]



1) B-pleural membrane-surround nbs on both sides to provide cushion against rubbing

2) C-Alveoli-thin-walled vascular bag like structures for exchange of gases

3) D-lower end of lungs-diaphragm pulls it down during inspiration

4) A-trachea-long tube supported by complete cartilaginous rings for conducting inspired air

16. Which one of the following is the correct statement for respiration In humans? [AIPMT (Prelims)-2012]

1) About 90% of carbon dioxide (CO_2) is earned by haemoglobin as carbamino-haemoglobin

2) Cigarette smoking may lead to inflammation of bronchi

3) Neural signals from pneumotaxic centre in pons region of brain can increase the duration of inspiration

4) Workers in grinding and stone-breaking industries may suffer, from lung fibrosis

17. People who have migrated from the planes to an area adjoining Rohtang Pass about six months back [AIPMT (Prelims)-2012)

1) Have the usual RBC count but their haemoglobin has very high binding affinity to O_2

2) Have more RBCs and their haemoglobin has a lower binding affinity of O_2

3) Are not physically fit to play games like football

4) Suffer from altitude sickness with symptoms like nausea, fatigue, etc

18. A large proportion of oxygen is left unused in the human blood even after its uptake by the body tissues. This O_2 [AIPMT (Prelims)-2011]

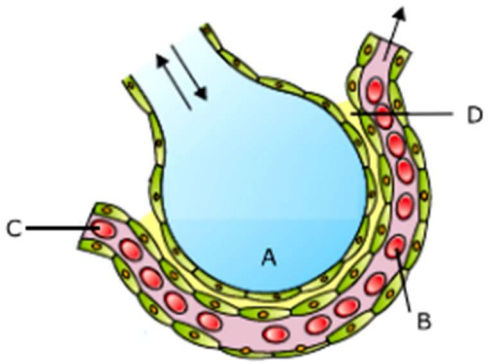
1) Helps in releasing more O_2 to the epithelial tissues

2) Acts as a reserve during muscular exercise

3) Raises the ρCO_2 of blood to 75 mm of Hg.

4) Is enough to keep oxyhaemoglobin saturation at 96%

19. The figure given below shows a small part of human lung where exchange of gases takes place. In which one of the options given below, the one part A, B, C or D is correctly identified along with its function[AIPMT (Prelims)-2011]



1) B: Red blood cell - transport of CO_2 mainly.

2) C: Arterial capillary - passes oxygen to tissues

3) A: Alveolar cavity - main site of exchange of respiratory gases

4) D: Capillary wall - exchange of O_2 and CO_2 takes place here.

20. Bulk of carbon dioxide (CO_2) released from body tissues into the blood is present as [AIPMT (Mains)-2011]

1) 70% carbamino-haemoglobin and 30% as bicarbonate

2) Cartoamino-haemoglobm m RBCs

3) Bicarbonate in blood plasma and RBCs

4) Free CO_2 in blood plasma

21. Which one of the following is a possibility for most of us in regard to breathing, by making a conscious effort? [AIPMT (Mains)-2011]

1) One can consciously breathe in and breathe out by moving the diaphragm alone, without moving the ribs at all

2) The lungs can be made fully empty by forcefully breathing out all air from them

3) One can breathe out air totally without oxygen

4) One can breathe out air through eustachian tubes by closing both the nose and the mouth

22. Which two of the following changes (a-d) usually tend to occur in the plain dwellers when they move to high altitudes (3,500 m or more)?

(a) Increase in red blood cell size

(b) Increase in red blood cell production

(c) Increased breathing rate

(d) Increase in thrombocyte count

Changes occurring are [AIPMT (Prelims)-2010]

1) (a) & (b) 2) (b) 4 (c)

3) (c) & (d) 4) (a) & (d)

23. Listed below are four respiratory capaaties (a - d) and four jumbled respiratory volumes of a normal human adult: Respiratory capacities and volumes

(a) Residual volume 2500 mL

(b) Vital capacity 3500 mL

(c) Inspiratory reserve volume 1200 mL

(d) Inspiratory capacity 4500 mL

Which one of the following is the correct matching of two capacities and volumes? [AIPMT (Prelims).2010)]

1) (a) 4500 mL, (b) 3500 mL

2) (b) 2500 mL, (c) 4500 mL

3) (c) 1200 mL, (d) 2500 mL

4) (d) 3500 mL, (a) 1200 mL

24. What is vital capacity of our lungs? [AIPMT (Prelims)-2008]

1) Total lungs capacity minus residual volume

2) Inspiratory reserve volume plus tidal volume

3) Total lungs capacity minus expiratory reserve volume

4) Inspiratory reserve volume plus expiratory reserve volume

25. Increased asthamatic attacks in certain seasons are related to [AIPMT (Prelims)-2007]

1) Low temperature

2) Hot and humid environment

3) Eating fruits preserved in tin containers

4) Inhalation of seasonal pollen

26. People living at sea level have around 5 million RBC per cubic millimeter of their blood whereas those living at an altitude of 5400 metres have around 8 million. This is because at high altitude [AIPMT (Prellms)-2006]

1) People get pollution-free air to breathe and more oxygen is available

2) Atmospheric O_2 level is less and hence more RBCs are needed to absorb the required amount of O_2 to survive

3) There is more UV radiation which enhances RBC production

4) People eat more nutritive food, therefore more RBCs are formed

27. The majority of carbon dioxide produced by our body cells is transported to the lungs [AIPMT (Prelims)-2006]

1) Dissolved in the blood

2) As bicarbonates

3) As carbonates

4) Attached to haemoglobin

28. In man and other mammals, air passes from outside into the lungs through

1) Nasal cavity, larynx, pharynx, trachea, bronchi, alveoli.

2) Nasal cavity, larynx, pharynx, trachea, bronchioles, alveoli

3) Nasal cavity, pharynx, larynx, trachea, bronchioles, bronchi, alveoli

4) Nasal cavity, pharynx, larynx, trachea, bronchi, bronchioles, alveoli

29. Lungs are enclosed in

1) Peritoneum 2) Perichondrium

3) Pericardium 4) Pleural membranes

30. When a person breathes air through a tube directly into the trachea (tracheotomy) it may lead to serious lung crushing and infection due to

1) Cooling effect 2) Drying effect

3) Non filtering effect 4) All of these

31. Pitch of the voice is lower in males than females as the vocal cords of man are

1) Thicker and longer

2) Thinner and longer

3) Thicker and shorter

4) Thinner and shorter

32. Which of the following statement is not true for man?

1) Forceful expiration is an active process

2) Mammals have negative pressure breathing

3) Internal intercostal and abdominal muscles are muscles of forceful inspiration

4) Respiration excretes CO_2, water etc.

33. The ventilation movements of the lungs in mammals are governed by

1) Muscular walls of lung

2) Diaphragm

3) Costal muscles 4) Both 2) & 3)

34. In lungs, the air is separated from the venous blood through

1) Transitional epithelium of alveoli + squamous epithelium of blood vessel

2) Squamous epithelium of alveoli + endothelium of blood vessel

3) Squamous epithelium of alveoli + cubical epithelium of blood vessel

4) Cubical epithelium of alveoli + columnar epithelium of blood vessel

35. Which of the following volume or capacity of lungs can't be measured directly by the spirometer?

1) Residual volume

2) Functional residual capacity

3) Total capacity

4) All of these

36. Amount of air left in the lung after normal expiration is

1) Residual volume

2) Inspiratory reserve volume

3) Expiratory reserve volume

4) Functional residual capacity

37. Minute Volume of Respiration (MVR) in a person can be defined as

1) Tidal volume × Breathing rale

2) (Tidal volume - Anatomic dead space) × Breathing rate

3) Vital capacity - Breathing rate

4) Vital capacity + Tidal volume

38. When CO_2 concentration in blood increases, breathing becomes

1) Shallower and slow

2) There is no effect on breathing

3) Slow and deep

4) Faster and shallower

39. The CO_2 content by volume, in the atmospheric air is about

1) 3.34%

2) 4%

3) 0.0314% 4) 0.34%

40. Although much CO_2 is carried in blood, yet blood does not become acidic, because

1) CO_2 is continuously diffused through the tissues and is not allowed to accumulate

2) In CO_2 transport, blood buffers play an important role

3) CO_2 is absorbed by the leucocytes

4) CO_2 combines with water to form H_2CO_3 which is neutralized by $NaCO_3$

41. The carbon dioxide is transported via blood to lungs

1) In combination with haemoglobin only

2) Dissolved in blood plasma only

3) In the form of carbonic acid only

4) As carbaminohaemoglobin and as bicarbonates

42. How does the transport of O_2 and CO_2 by blood occur?

1) With the help of WBCs and blood serum

2) With the help of platelets and corpuscles

3) With the help of RBCs and blood plasma

4) With the help of RBCs and WBCs

43. Blood analysis of a patient reveals an unusually high quantity of carboxyhaemoglobin content The patient has been inhaling polluted air containing unusually high content of

1) Carbon disulphide 2) Chloroform

3) Carbon dioxide 4) Carbon monoxide

44. What is true about RBCs in humans?

1) They do not carry CO_2 at all

2) They carry both CO_2 and O_2

3) They transport 99.5 percent of O_2

4) They transport about 80 percent oxygen only and the rest 20 percent of it is transported in dissolved state in blood plasma

45. How carbon monoxide, emitted by automobiles, prevents transport of oxygen to the body tissues?

1) By forming a stable compound with haemoglobin

2) By inhibiting exchange of O_2 at alveoli

3) By changing oxygen into carbon dioxide

4) By destroying the haemoglobin

46. The respiratory centre, which regulates respiration, is located in

1) Cerebellum 2) Medulla oblongata

3) Cerebral peduncle4) The vagus nerve

47. Mark the incorrect statement

1) Hering Breuer's reflex prevents the over expansion of lungs

2) Oxygen dissociation curve for foetal haemoglobin is on the left side with respect to maternal haemoglobin

3) When pneumotaxic centre transmits strong signals then inspiration time becomes shorter

4) Amount of air left in the lung after normal expiration is termed as residual volume only

48. Which of the following reflex is involved to prevent excessive inflation of the lungs?

1) Stretch reflex

2) Hering-Breuer's reflex

3) Withdrawal reflex

4) Conditioned reflex

49. Chemoreceptors present in carotid and aortic arch are very much sensitive to

1) Increase in ρCO_2 in arterial blood

2) Increase in ρO_2 in arterial blood

3) Decrease in ρO_2 in venous blood

4) Both (2) & (3)

50. A person remaining at high altitudes for years becomes more and more acclimatized to the low pO, by the following except

1) Increased pulmonary ventilation

2) Increased in RBCs and haemoglobin concentration

3) Polycythemia

4) Increased cardiac output permanently

LEVEL-3 KEY

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
3	3	1	1	2	2	1	2	2	2
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
4	3	3	1	2	4	1	2	3	3
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
1	2	4	1	4	2	2	4	4	4
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
1	3	4	2	4	4	1	4	3	2
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
4	3	4	2	1	2	4	2	1	3

EXCRETORY PRODUCT AND THEIR ELIMINATION

LEVEL-1

1. The excretory organ in crustaceans, like prawns is

1) Antennal glands
2) Nephridia
3) Flame cells
4) Malpighian tubules

2. Uricotelic mode of passing out nitrogenous wastes is found in

1) Birds and annelids
2) Amphibians and reptiles
3) Insects and amphibians
4) Reptiles and birds

3. In human, the waste products of nucleotide metabolism are excreted as

1) Ammonia
2) Uric acid
3) Urea 4) Amino acid

4. With respect to mode of excretion bony fishes are?

1) Osmoconformers 2) Ammonotelic
3) Uricotelic 4) Uriotelic

5. Excretory product of spider is

1) Uric acid 2) Ammonia
3) Guanine 4) None of these

6. Chick excrete their secretion in the form of

1) Ammonia 2) Urea
3) Uric acid 4) Crystal of guanine

7. Urea synthesis occurs in

1) Kidney 2) Liver
3) Brain 4) Muscles

8. Select the right option

1) Nitrogenous excretory products are synthesised in kidney and eliminated in liver
2) Nitrogenous excretory products are synthesised in kidney, and eliminated also
3) Nitrogenous excretory products are synthesised in liver, and eliminated via bile juice
4) Nitrogenous excretory products are synthesised in liver eliminated by kidney

11. In human, excretory system consists of

I. pair of kidneys
II. one pair of ureters
III. urinary bladder
IV. Urethra
V. skin
VI. Lungs
VII. Liver

1) I, II, III and II
2) I, II, III and IV
3) I, II, III and IV
4) I, II, III, IV, V, IV and VII

12. Part of the kidney through which the ureter, blood vessels and nerves enters into it is

1) Renal cortex 2) Renal medulla
3) Hilum
4) Urethra

13. Malpighian body or renal corpuscle is/are

1) Bowman's capsule
2) Glomerulus
3) Both (1) and (2)
4) Proximal convoluted tubule

14. Identify the wrong statements about human excretory system and choose the correct option accordingly

I. Kidneys are reddish brown and bean-shaped structure

II. Kidneys are situated between the last thoracic and third lumber vertebra

III. Each kidney of an adult human measures 10-12 cm in length, 5-7 cm in width, 2-3 cm thickness, and average weight 120-170 gram

1) I and II 2) II and III

3) III and I 4) None of these

15. The rupture of urinary bladder is prevented by

1) Pseudostratified epithelium

2) stratified columnar epithelium

3) Stratified cuboidal epithelium

4) Transitional epithelium

16. Each nephron has two parts, which are

1) Bowman's capsule and P C T

2) Glomerulus and renal tubule

3) Glomerulus and Bowman's capsule

4) Bowman's capsule and renal tubule

17. Collecting duct of nephron extends kidney from cortex to

1) Capsule region

2) Inner part of medulla

3) Outer part of medulla

4) Middle part of medulla

18. Primary or main excretory organ in humans is

1) Skin 2) Lung

3) Kidney 4) Spleen

19. Which of the following organs synthesizes urea?

1) Duodenum 2) Kidney

3) Liver 4) Pancreas

20. I. Ureter II. Renal pelvis, III. Calyx IV. Urinary bladder V. Urethra

Choose the correct sequence of urine route to outside

1) I→II→III→IV→V 2) V→IV→III→II→I

3) V→III→IV→I→II 4) III→II→I→IV→V

21. Longest loop of Henle is found in

1) Kangaroo rat 2) Opossum

3) rhesus monkey 4) All of these

22. Identify the correct statements

I. The outer layer of the kidney is called capsule

II. Cortex is divided into outer cortex and inner medulla

III. Medulla is divided into medullary pyramids

IV. The cortex extends in between the medullary pyramids which is called as columns of Bertini

Choose the correct option accordingly

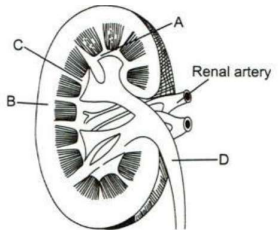
1) I, III and IV 2) I and IV

3) I, II and III 4) I, II, III and IV

23. Glucose is mainly absorbed in

1) PCT 2) DCT 3) Henle's loop 4) Nephron

24. Identify A to D in the given structure and choose the correct option accordingly



1) A-Calyx, B-Cortex, C-Renal column, D-Ureter

2) A-Calyx, B-Cortex, C-Renal column, D-Urethra

3) A-Urethra, B-Cortex, C-Renal column, D-Calyx

4) A-Urethra, B-Calyx, C-Renal column, D-Cortex

25. In majority of nephrons, the loop of Henley's is found in the

1) Cortical region of the kidney
2) Medullary region of the kidney
3) Both (1) and (2)
4) Pelvis region of the kidney

26. Arrange the following parts of the nephron in a sequential manner and select the correct option accordingly

I. Glomerulus
II. Bowman's capsule
III. Henle's loop
IV. Proximal convoluted tubule
V. Collecting duct
VI. Distal convoluted tubule

1) I→II→III→IV→V→VI
2) I→II→III→VI→V
3) I→II→IV→III→V→VI
4) VI→III→II→I→VI→V

27. The ascending and descending limb of Henle's loop is a respectively lined by

1) Squamous epithelium, cuboidal epithelium
2) Cuboidal epithelium, sequamous epithelium
3) Ciliated epithelium, sequamous epithelium
4) Cuboidal epithelium, ciliated epithelium

28. Which of the following structures are situated in the cortical region of the kidney?

I. Malpighian corpuscle
II. PCT (Proximal Convoluted Tubules)
III. DCT (Distal Convoluted Tubules)
IV. Loop of Henle
V. Collecting duct

1) I, II and III
2) III, IV and V
3) II, III and IV
4) IV, V and I

29. The structural unit of human kidney is

1) Nephron
2) Ureter
3) Loop of Henle
4) Bowman's capsule

30. In juxta-medullary nephrons,

1) Vasa recta is prominent
2) Loop of Henle is long
3) Loop of Henle runs deep into the medulla
4) All of the above

31. A fall in the GFR rate activates the

1) JG cells to release renin
2) JG cells to release aldosterone
3) JG cells to release epinephrine
4) JG cells to release nor-epinephrine

32. GFR is a healthy individual is

1) 125 mL/min
2) 150 L/day
3) 125 mL/sec
4) 135 L/day

33. Glucose, Na, and amino acid are actively transported substances, because

1) Their movement occurs according to concentration gradient
2) Their movement occurs against concentration gradient
3) ATP is not needed for transportation
4) They are transported by simple diffusion

34. Renin is released by

1) Hypothalamus
2) Posterior lobe of pituitary
3) Anterior lobe of pituitary
4) J G cells

35. Which of the following is both osmoregulator as well as nitrogenous product?

1) NH_3
2) Urea
3) Uric acid
4) All of these

36. JGA (Juxta Glomerular Apparatus), a sensitive region, which regulates the glomerular filtration rate is present near the

1) DCT and PCT
2) DCT and efferent arteriole
3) DCT and afferent arteriole
4) Loop of Henle's and DTC

37. Choose the mismatched part of nephron with their function

1) Bowman's capsule - Glomerular filtration
2) PCT - Aeabsorption of Na^+ and K^+
3) DCT - Aeabsorption of glucose
4) Loop of Henle - Urine concentration

38. What is the obligatory water reabsorption?

1) Reabsorption of water from PCT
2) Reabsorption of water from loop of Henle
3) Both (1) and (2)
4) Water secretion by Bowman's capsule

39. Identify the true statements and choose the correct option accordingly

I. Blood vessel leading to the glomerulus is called efferent arteriole

II. Vasa-recta, peritubular capillaries and glomerulus, all have blood

III. Cortical nephrons have highly reduced vasa-recta

IV. Vasa-recta runs parallel to the Henle's loop in the juaxta-medullary nephron

40. A large quantity of fluid is filtered every day by the nephrons in the kidneys. Only about 1% of it is excreted as urine. The remaining 99% of the filtrate

1) Gets collected in the renal pelvis
2) Is lost as sweat
3) Is stored in the urinary bladder
4) Is reabsorbed into the blood

41. When does glomerular filtration occurs in Bowman's capsule?

1) When hydrostatic pressure of blood in the glomerulus is 70 mm Hg and net filtrate pressure is -25 mm Hg
2) When hydrostatic pressure of blood in the glomerulus is 70 mm Hg and net filtrate pressure is -35 mm Hg
3) When hydrostatic pressure of blood in the glomerulus is 70 mm Hg and net filtrate pressure is 10 mm Hg
4) When hydrostatic pressure of blood in the glomerulus is 70 mm Hg and net filtrate pressure is -70 mm Hg

42. The principle nitrogenous excretory compound in humans is synthesized

1) In kidneys, but eliminated mostly through liver
2) In kidneys as well as eliminated by kidneys
3) In liver and also eliminated by the same through bile
4) In the liver, but eliminated mostly through kidneys

43. If one liter of water is introduced in human blood, then

1) BMR increases
2) RBC collapses and urine production increases
3) RBC collapses and urine production decreases
4) BMR decreases

44. Find the correct option regarding mechanism of urine formation in man.

1) The glomerular filtration rate is about 125 mL/min
2) The ultra filtration is opposed by the colloidal osmotic pressure of plasma

3) Tubular secretion takes place in the PCT

4) Aldosterone induces greater reabsorption of sodium

45. Glomerular filtrate is

1) Blood minus blood corpuscles and plasma protein

2) Blood minus corpuscles

3) Mixture of water, ammonia and corpuscles

4) Urine

46. The net filtration pressure in the glomerulus of the kidney is

1) 70 mm Hg 2) 35 mm Hg

3) 25 mm Hg 4) 10 mm Hg

47. The size of filtration slits of glomerulus is

1) 10 nm 2) 15 nm 3) 20 nm 4) 25 nm

48. The renal fluid isotonic to the cortical fluid and blood is found in

1) The collecting duct and ascending limb

2) The distal convoluted tubule and ascending limb

3) The proximal convoluted tubule and distal convoluted tuble

4) The ascending limb and descending limb

49. Juxta glomerular apparatus is modification in the

1) Afferent atriole and PCT

2) Afferent atriole and DCT

3) Efferent atriole and DCT

4) Efferent atriole and PCT

50. In 24 hours, total glomerular filtrate formed in the human kidney is

1) 1.7 litres 2) 7 litre

3) 17 litres 4) 170 litres

51. Glomerular filtrate rate per day is

1) 150 L 2) 190 L 3) 170 L 4)180L

52. Composition of urine

I. Water ...A%

II. Urea ...B%

III. Uric acid ...C%

IV. Salt ...D%

Choose the right options for A, B, C and D from given options

1) A-90; B-2.0; C-1; D-2

2) A-95; B-2.6; C-0.3; D-1.5

3) A-80; B-2.6; C-0.3; D-1.5

4) A-85; B-2.6; C-0.3; D-1.5

53. During urine formation, which of the following processes create high osmotic pressure in the uriniferous tubule?

1) Active Na^+ absorption, followed by absorption of Cl^-

2) Active Cl^- absorption, followed by absorption of Na^+

3) Active secretion of Na^+ into efferent arteriole followed by absorption of Cl^- into efferent renal arteriole

4) Active secretion of Cl^- and absorption of Na^+ into efferent renal arteriole

54. In which part of nephron, reabsorption is minimum from filtrate?

1) Henle's loop

2) Proximal convoluted tubule

3) Distal convoluted tubule

4) Collecting duct

55. Main function of DCT of nephron is to maintain the

1) pH in blood 2) Na-K balance of blood

3) Both (1) and (2) 4) Temperature of blood

56. I. Reabsorption of water occurs passively in the initial segment of nephron

II. Nitrogenous waste are absorbed by active transport

III. Conditional reabsorption of Na^+ and water takes place in DCT

IV. DCT reabsorbs glucose

V. DCT is capable of selective secretion of H^+, K^+ and NH_3 to maintain pH and Na^+ - K^+ balance in blood

VI. Substances like glucose, amino acids, Na^+, etc, in the filtrate are reabsorbed actively

Choose the option with incorrect statements

1) I and II
2) III and IV
3) Vand VI
4) II and IV

57. Out of

I. PCT II. DCT

III. Loop of Henle IV. Collecting duct

Which contributes most in maintaining pH of blood?

1) I and II
2) II and III
3) III and IV
4) I and IV

58. Medullary gradient is mainly developed due to

1) NaCl and urea
2) NaCl and glucose
3) Glucose and urea
4) Ammonia and glucose

59. How much percentage of the filtrate is reabsorbed in the renal tubules?

1) 5%
2) 25%
3) 90%
4) 99%

60. The normal value of GFR is approximately:

1) 650 ml/min
2) 180 ml/min
3)180 ml/day
4) 125 ml/min

61. Henle's loop of nephron plays a significant role in maintaining a high osmolarity in

1) Interstitial fluid of hilum
2) Medullary interstitial fluid
3) Cortex interstitial fluid
4) All of the above

62. Identify the true statements and choose the correct option accordingly

I. Blood vessel leading to the glomerulus is called efferent arteriole

II. Vasa-recta, peritubular capillaries and glomerulus, all have blood

III. Cortical nephrons have highly reduced vasa-recta

IV. Vasa-recta runs parallel to the Henle's loop in the juaxta-medullary nephron

1) I, II and III
2) I, II and IV
3) I, III and IV
4) II, III and IV

63. The proximity between Henle s loop and vasa-recta as well as the counter current in them help in maintain an …A… in molarity towards inner interstitium medullary, region, j. e., from …B… mos mol-1 in the cortex to about …C… m mol-1 in the inner medulla Here a, b and c refers to

1) A-increasing B-500, C-800
2) A-decreasing, B-300, C-1200
3) A-decreasing, B-1200, C-300
4) A-increasing, B-300, C-1200

64. Volume of urine is regulated by

1) Aldosterone
2) Aldosterone and testosterone
3) ADH
4) Aldosterone and ADH

65. Ammonia is converted into urea in

1) Kidney 2) Lungs 3) Liver 4) Spleen

66. Osmoreceptores in the body is activated by the changes in

I. blood volume

II. body fluid volume

III. ionic concentration

The option containing correct statements is

1) I and II 2) I and III

3) III and II 4) All of these

67. ANF (Anti Natriuretic Factor) is released by

1) Lung 2) Kidney

3) Heart 4) All of the above

68. ADH is secreted by

1) Anterior lobe of pituitary

2) Middle lobe of pituitary

3) Posterior lobe of pituitary

4) All of the above

69. Angiotensin-II activates the ..A.. and release……B…… Choose the correct option for A and B to complete the given statement

1) A-adrenal cortex; B-aldosterone

2) A-adrenal medulla; B-aldosterone

3) A-adrenal capsule; B-aldosterone

4) A-adrenal medulla; B-oxytocin

70. Vasopressin released from the neurohypophysis is mainly responsible for

1) Facultative reabsorption of water through Henle's loop

2) Obligatory reabsorption of water through Bowman's capsule

3) Facultative reabsorption of water through DCT

4) Obligatory reabsorption of water through PCT

71. ADH is also called

1) Vasopressin 2) Prolactin

3) Urease 4) Oxytocin

72. Renin is secreted from

1) Juxtaglomerular cells

2) Podocytes

3) Nephridia

4) Stomach

73. The functioning of the kidneys is efficiently monitored and regulated by the hormonal feedback mechanism involving

1) Hypothalamus 2) JGA

3) Heart 4) All of the above

74. Juxtaglomerular cells of renal cortex synthesize an enzyme called

1) ADH 2) Oxytocin

3) Rennin 4) Urochrome

75. The expulsion of urine from the urinary bladder is called

1) Uricolysis 2) Micturition

3) Ornithine 4) None of these

76. Mammals have the ability to produce

1) Isotonic urine 2) Hypertonic urine

3) Hypotonic urine 4) Acidic urine

77. An adult human excretes on an average

1) 2-3 litres of urine per day

2) 1-1.5 litres of urine per day

3) 2-5 litres of urine per day

4) 4-5 litres of urine per day

78. A man takes large amount of proteins. He is likely to excrete a greater amount of

1) Urea

2) Uric acid

3) Sugar

4) None of these

79. The yellow colour of urine is due to the presence of

1) Urea 2) Uric acid

3) Urochrome 4) Bilirubin

80. pH of urine (average pH) is

1) 7.0 2) 6.5 3) 7.5 4) 6.0

81. The outline of principal event of urination is given below in unorder manner

I. Stretch receptors on the wall of urinary bladder send signal to the CNS

II. The bladder fills with urine and becomes distended

III. Micturition

IV. CNS passes on motor messenger to initiate the contraction smooth muscles of bladder and simultaneous relaxation of urethral sphincter

The correct order of steps for urination is

1) II→I→IV→III 2) IV→III →II→I

3) II→I→III→IV 4) III→II→I→IV

82. The conversion of dangerous nitrogenous waste into less toxic excretory matter is carried out in man in the

1) Blood 2) Liver 3) Kidney 4) Skin

83. Other than kidney which of the following organs help in elimination of excretory wastes?

I. Lungs II. Liver III. Skin IV. Spleen

Choose the correct option containing all correct organs

1) I, II and III 2) II, III and IV

3) I, III and IV 4) I, II and IV

84. Our lungs release

1) 18 L of O_2 every day

2) 18 L of CO_2 everyday

3) 10 L of CO_2 every day

4) 10 L of O_2 everyday

85. Glomerulonephritis is

1) Bleeding of glomeruli of kidney

2) Absence of glomeruli of kidney

3) Inflammation of glomeruli of kidney

4) Inflammation of PCT of kidney

86. Which of the following is correct with reference to haemodialysis?

1) Absorbs and resends excess of ions

2) The dialysis unit has a coiled cellophane tube

3) Blood is pumped back through a suitable artery after haemodialysis

4) Anti-heparin is added prior to haemodialysis

87. Anuria is failure of

1) Kidney to form urine

2) Tubular secretion in kidney

3) Tubular filtration in kidney

4) Tubular reabsorption in kidney

88. If excess water passes out from tissues without being restored by kidneys, the cells would

1) Burst open and die

2) Not be affected at all

3) Extract water from plasma

4) Shrivel and die

89. Choose the correct statements

I. Kidney transplantation is the ultimate method at the stage where drug or dialysis do not help

II. Close relatives are often used as kidney donors to minimise risk of rejection

III. Cylosporin-A is used as immunosuppressive agent in kidney transplant patient

IV. Heparin and antiheparin are used in haemodialysis

Choose the correct option

1) I, II and III 2) IV, III and II

3) I, III and IV 4) I, II, III and IV

90. Name the condition when the concentration of ketone body increases in urine.

1) Acromegaly 2) Ketonuria

3) Diabetes insipidus 4) Cushing's disease

91. Kidney stones are produced due to deposition of uric acid and

1) Silicates

2) Minerals

3) Calcium carbonate

4) Calcium oxalate

92. Haemodialysis is associated with

1) Liver 2) Spleen

3) Kidney 4) Stomach

93. Renal calculi is

1) Soluble mass of crystallised salts in kidney

2) Soluble mass of protein in kidney

3) Insoluble mass of proteins in kidney

4) Insoluble mass of crystallised in kidney

94. Blackening of urine, when exposed to air is a metabolic disorder in human beings. This is due to

1) Phenylalanine

2) Tyrosine

3) Valine replacing glutamine

4) Homogentisic acid

95. Uremia is accumulation of urea in

1) Liver 2) Blood

3) Kidney 4) Bone joints

96. RASS secretes which of the following hormone?

1) Mineralocorticoids

2) Glucocorticoids

3) Both (1) and (2)

4) None of the above

LEVEL-1 KEY

1	2	3	4	5	6	7	8	9	10
1	4	2	2	3	3	2	4	4	4
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
3	3	3	4	4	2	2	3	3	4
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
1	4	1	1	1	2	4	1	1	4
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
1	1	2	4	2	3	3	3	4	4
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
3	4	2	3	1	4	4	3	2	4
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
4	2	1	4	3	4	1	1	4	4
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
4	4	4	3	4	3	3	1	3	1
71	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**
1	4	3	2	2	2	1	3	4	1
81	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**
2	1	2	3	2	1	4	4	2	4
91	**92**	**93**	**94**	**95**	**96**				
3	3	4	2	1	1				

LEVEL-2

1. All the following organisms excrete nitrogenous waste as uric acid in the form of pellet or paste, except

1) Kiwi 2) Land snails
3) Lizard 4) Cartilaginous fishes

2. Long loop-shaped capillaries extending from efferent arterioles in kidneys which seem parallel to Henle's loop are

1) Vasa efferentia 2) Vasa recta
3) Glomerulus 4) Vasa vasora

3. Which of the following factors in blood plasma will stimulate the release of renin from JG-celts?

	Sodium	**Potassium**
1)	Decrease -	Increase
2)	Increase -	Increase
3)	Decrease -	Decrease
4)	Increase -	Decrease

4. What will be the rate of filtration if the glomerular capillary pressure is 40 mmHg. the capsular pressure is 10 mmHg and the colloidal osmotic pressure is 30 mm?

1) Filtration will be fast
2) No filtration
3) Filtration will be slow
4) Initially fast filtration and later on slow

5. Find the correct statement w.r.t regulatory functions of kidneys.

1) During summers when body loses lots of water by sweating, the release of ADH is supressed
2) When we drink lots of water than required ADH release is supressed
3) Exposure to cold stimulates ADH release
4) An increase in glomerular blood flow stimulates formation of angiotensin II

6. Find the incorrect statement

1) ANF increases the elimination of sodium n urine
2) If nephrons of one kidney are damaged, new nephrons are formed
3) Surgical removal of one kidney stimulates hypertrophy of another kidney
4) Human kidneys can produce urine nearly four times concentrated than the initial filtrate

7. In which part of nephron, water is obliged to follow the solutes when they are reabsorbed?

1) PCT 2) OCT
3) Collecting duct 4) Collecting tubule

8. What will be the osmolarity of glomerular filtrate leaving the proximal convoluted tubule in normal healthy person?

1) 600 mOsm/L 2) 400 mOsm/L
3) 300 mOsm/L 4) 1200 mOsm/L

9. Krebs-Hansleit cycle removes two wastes from blood in Inzer.

1) Ammonia and water
2) Ammonia and urea
3) Ammonia and CO_2
4) Urea and ATP

10. Given below are following statements

(a) On an average. 18-38 mg of urea is excreted
(b) The normal level of urea in the blood ranges from 25-30 g per 100 ml of blood
(c) GFR in a healthy individual is about 125 ml/day
(d) About 99% of filtrate is reabsorbed by the nephric tubules

Choose the option which includes incorrect

statements.

1) (a) & (b) 2) (a), (b) & (c)

3) (a), (b) & (d) 4) (a), (b), (c) & (d)

11. Amount of urine is affected by

1) Antidiuretic hormone

2) Aldosterone

3) Length of Henle's loop

4) All of these

12. Glomerular filtrate contains

1) Blood without urea

2) Blood with protein but without blood cells

3) Blood without blood cells and proteins

4) Plasma without glucose

13. The cells named podocytes occur on

1) Endothelium of glomerulus

2) Parietal layer of Bowman's capsule

3) Basement membrane of glomerulus

4) Visceral layer of Bowman's capsule

14. All of the following parts of the nephron are permeable to water, except

1) Proximal convoluted tubule

2) Distal convoluted tubule

3) Ascending limb of loop of Henle

4) Descending limb of loop of Henle

15. Read the following statements

(a) In glomerulus, urea, uric acid, water, glucose and plasma proteins are filtered out

(b) ANF decreases the blood pressure

(c) Urine is concentrated in loop of Henle

(d) Glucose has high threshold value

How many given statement(s) is/are correct?

1) One

2) Two

3) Three

4) Four

16. Match the following columns

	Column-I		Column-II
a.	Ammonotelic	(i)	Reptiles, birds and land snails
b.	Ureotelic	(ii)	Spider and scorpion
c.	Uricotelic	(iii)	Cartilaginous fishes and adult frog
d.	Guanotelic	(iv)	Fresh water bony fishes and tadpole of frog

1) a(i), b(i), c(iii), d(iv)

2) a(ii), b(iii), c(iv), d(i)

3) a(iii), b(ii), c(i), d(iv)

4) a(iv), b(ii), c(i), d(ii)

17. During urine formation, the tubular cells secrete substances like H^+, K^+ and NH_3 into the filtrate, this process is called

1) Ultrafiltration

2) Tubular reabsorption

3) Tubular secretion

4) Glomerular filtration

18. Renin secreted by juxtaglomerular apparatus of kidney is characterized by all. Except

1) Work through "Renin-Angiotensin-Aldosterone system"

2) Also secreted by peptic eels of stomach

3) Raise the glomerular blood pressure and regulates GFR

4) Activates angiotensinogen

19. In artificial kidney, dialysis fluid contains same quantities of all the substances as normal plasma, except

1) Glucose 2) Urea

3) Electrolytes 4) Amino acids

20. The embryo of chick removes the nitrogenous waste material in the form of

1) Ammonia 2) Allantoin

3) Uric acid 4) Urea

21. Which is a characteristic of muscles fibres present in wall of urinary bladder?

1) Striated 2) Voluntary

3) Multinucleated 4) Autorhythmic

22. Reabsorption of which ions/molecules plays a major role in body electrolyte and water metaboism?

1) K^+, H^+ 2) Na^+, Cl^-

3) HCO_3^-, PO_4^{3-} 4) Na^+, urea

23. Which function is performed by sympathetic nerves that innervate urinary bladder of a male?

1) It plays major role in micturition

2) It has no effect in micturition

3) They mediate the contraction of sphincter muscle that prevents semen from entering bladder during ejaculation

4) More than one option is correct

24. The parts of nephron situated in cortical region of kidney are

1) Loop of Henle. PCT and collecting duct

2) Collecting duct PCT and malpighian corpuscle

3) PCT, DCT and Loop of Henle

4) PCT, DCT and Malpighian corpuscle

25. On an average,_____ml of blood is filtered by the kidneys per minute which constitute roughly _____of the blood pumped out by each ventricle of the heart in a minute.

1) 500 – 600, $1/5^{th}$ 2) 1100-1200, $1/3^{th}$

3) 500-600, $1/3^{th}$ 4) 1100-1200,$1/5^{th}$

26. Which one of the following statements is incorrect?

1) The medullary zone of kidney is divided into a few conical masses called medullary pyramids projecting into calyces

2) Inside the kidney the cortical region extends in between the medullary pyramids as renal pelvis

3) Glomerulus along with Bowman s capsule is called the renal corpuscle

4) Renal corpuscle, proximal convoluted tubule (PCT) and distal convoluted tubule (DCT) of the nephron are situated in the cortical region of kidney

27. Which of the following pairs is wrong?

1) Uricotelic – Birds

2) Ureotelic – Insects

3) Ammonotelic - Bony fishes

4) Ureotelic – Elephant

28. A fresh water fish maintains osmoregulation by

1) Continuously taking in water and eliminating excess of salts

2) Eliminating excess of water and taking up salts from the environment

3) Taking both water and salt from the environment

4) Eliminating both salt and water into the environment

29. Consider the following water conservation mechanisms

A. Nasal counter current mechanism

B. Dependence on metabolic water

C. Highly hypertonic urine

D. Living more on protein rich diet

The kangaroo rat living in desert can survive without drinking water because of

1) A, B & C

2) A, B & D

3) B, C & D

4) A, C & D

30. Select the true statement

1) In fishes kidney play a major role in ammonia excretion

2) Ammonia is 100,000 times less toxic than urea

3) Sharks retain a large amount of urea in the Wood as a major osmolyte to balance the osmolarity of the body fluids

4) Most terrestrial reptiles excrete ammonia

31. The kidneys not only remove the waste products from the blood but also play a very important role in maintaining

1) Equilibrium of the body

2) Temperature of the body

3) Constant composition of the blood irrespective of the nature of the food or fluid intake

4) Blood pressure constant

32. Which of the following is correct?

1) Afferent arteriole is narrower than the efferent arteriole

2) Efferent vein s narrower than venule

3) Efferent arteriole is narrower than afferent arteriole

4) Both afferent and efferent arteriole are of same diameter

33. Which of the following defines the net filtration pressure (NFP)?

1) BCOP - (GHP + CHP)

2) GHP - (BCOP + CHP)

3) (BCOP + GHP) – CHP

4) (GHP - CHP) + BCOP

34. Henle's loops are found in those animals which excrete hypertonic urine. One of the following does not have Henle's loop

1) Birds 2) Mammals

3) Frogs 4) Reptiles

35. Concentration of sodium and chloride ions is lowest

1) Near the cortex

2) Deep in medulla

3) In the interstitial fluid

4) In the middle of Henle's loop

36. Which of the following statement is Incorrect?

1) ADH is a vasoconstrictor

2) Aldosterone facilitates water reabsorption

3) ANF enhances sodium reabsorption

4) ANF causes vasodilation

37. Which one influences the activity of kidney?

1) Erythropoietin 2) Thyroxine

3) Vasopressin and aldosterone

4) Gonadotrophs

38. Angiotensin - II increases the blood volume by

1) Signaling Loop of Henle reabsorb more NaCl and water

2) Stimulating adrenal gland to release aldosterone

3) By stimulating the release of ADH

4) Stimulating the release of ANF from heart

39. When the volume of body fluid falls below normal. ADH

1) Decreases permeability of distal convoluted tubule and collecting tubule

2) Increases permeability of distal convoluted tubule and collecting tubule

3) Has nothing to do with permeability of convoluted tubule

4) Decreases permeability of proximal convoluted tubule

40. The yellow colour of urine is due to

1) Uric acid 2) Urea

3) Urochrome 4) Melanin

41. Vitamin excreted in urine by higher vertebrates is

1) A 2) D 3) K 4) C

42 The presence of glucose and ketone bodies in urine are indicative of

1) Diabetes mellitus 2) Diabetes insipidus

3) Renal calculi 4) Glomerulonephritis

43. Haematuria is the disorder involving

1) The loss of blood through the urine

2) Loss of hemoglobin in RBC

3) Loss of glucose in urine

4) The increase in concentration of blood urea

44. GFR can be autoregulated by all except

1) Decrease in renal Wood pressure

2) Decrease in renal blood flow

3) Volume of urine

4) Stretching of vascular wall

45. The high osmolarity in the inner medulla is maintained mainly due to

1) NaCl only 2) NaCl and urea

3) Urea only 4) Urea and creatinine

46 The micturition reflex does not involve

1) Activation of stretch receptors of urinary bladder

2) Contraction of smooth muscles of the bladder

3) Contraction of urethral sphincter

4) CNS

47. Amount of CO_2 removed by our lungs every hour is approximately

1) 200 ml 2) 1200 ml

3) 12000 ml 4) 120000 ml

48. All the following are abnormal constituents of urine except

1) Glucose 2) Ketone bodies

3) Albumin 4) Potassium

49. Ethanol is a diuretic. It acts by

1) Inhibiting vasopressin secretion

2) Increasing vasopressin secretion

3) Increasing tubular reabsorption of Na^+

4) Inhibiting tubular reabsorption of Na^+

50. Excretory structures present in Prawns are

1) Antennal glands 2) Malpighian tubules

3) Nephridia 4) Flame cells

LEVEL-2 KEY

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
4	2	1	2	2	2	1	3	3	2
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
4	3	4	3	3	4	3	2	2	3
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
4	2	4	4	4	2	2	2	1	3
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
3	3	2	3	1	3	3	2	2	3
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
4	1	1	3	2	3	3	4	1	1

LEVEL-3(PREVIOUS YEARQUESTIONS)

1. Match the following parts of a nephron with their function:

(a) Descending limb of Henle's loop	(i) Reabsorption of salts only
(b) Proximal convoluted tubule	(ii) Reabsorption of water only
(c) Ascending limb of Henle's loop	(iii) Conditional reabsorption of sodium ions and water
(d) Distal convoluted tubule	(iv) Reabsorption of ions, water and organic nutrients

Select the correct option from the following :

[NEET-2019 (Odisha)]

1) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)

2) (a)-(i), (b)-(iii), (c)-(ii), (d)-(iv)

3) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)

4) (a)-(i), (b)-(iv), (c)-(ii), (d)-(iii)

2. Match the items in Column-I with those in Column-II

	Column-I	Column-II
(a)	Podocytes	(i) Crystallised oxalates
(b)	Protonephridia	(i) Annelids
(c)	Nephridia	(iii) Amphioxus
(d)	Renal calculi	(iv) Filtration slits

Select the correct option from the following:

[NEET-2019 (Odisha)]

1) (a)-(iv), (b)-(ii), (c)-(iii), (d)-(i)

2) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

3) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)

4) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

3. Which of the following factors is responsible for the formation of concentrated urine? [NEET-2019]

1) Low levels of antidiuretic hormone

2) Maintaining hyperosmolarity towards inner medullary interstitium in the kidneys.

3) Secretion of erythropoietin by Juxtaglomerular complex

4) Hydrostatic pressure during glomerular filtration

4. Use of an artificial kidney during hemodialysis may result in :

(a) Nitrogenous waste build-up in the body

(b) Non-elimination of excess potassium ions

(c) Reduced absorption of calcium ions from gastro -intestinal tract

(d) Reduced RBC production

Which of the following options is the most appropriate? [NEET-2019]

1) (a) and (b) are correct

2) (b) and (c) are correct

3) (c) and (d) are correct

4) (a) and (d) are correct

5. Match the items given in Column I with those in Column II and select the correct option given below. [NEET-2018]

	Column I (Function)	**Column II (Part of Excretory system)**
a.	**Ultrafiltration**	**i. Henle's loop**
b.	**Concentration**	**ii. Ureter of urine**
c.	**Transport of**	**iii. Urinary bladder urine**
d.	**Storage of**	**iv. Malpighian urine corpuscle**
		v. Proximal convoluted tubule

	a	b	c	d
1)	iv	v	ii	iii
2)	iv	i	ii	iii
3)	v	iv	i	iii
4)	v	iv	i	ii

6. Match the items given in Column I with those in Column II and select the correct option given below [NEET-2018]

	Column I		Column II
a.	Glycosuria	1.	Accumulation of uric acid in joints
b.	Gout	II.	Mass of crystallised salts within the kidney
c.	Renal calculi	iii.	Inflammation in glomeruli
d.	Glomerular nephritis	iv.	Presence of glucose in urine

	a	b	c	d
1)	iii	ii	iv	i
2)	i	ii	iii	iv
3)	iv	i	ii	iii
4)	ii	iii	i	iv

7. A decrease in blood pressure/volume wtf not cause the release of [NEET-2017]

1) Renin 2) Atrial Natriuretic Factor

3) Aldosterone 4) ADH

8 The part of nephron involved in active reabsorption of sodium is [NEET (Phase-2)-2016]

1) Distal convoluted tubule

2) Proximal convoluted tubule

3) Bowman's capsule

4) Descending limb of Henle's loop

9. Human urine is usually acidic because

1) Hydrogen ions are actively secreted into the filtrate **[Re-AIPMT-2015]**

2) The sodium transporter exchanges one hydrogen ion for each sodium ion. m peritubular capillaries

3) Excreted plasma proteins are acidic

4) Potassium and sodium exchange generates acidity

10. Removal of proximal convoluted tubule from the nephron will result in [AIPMT-2015]

1) No urine formation

2) More diluted urine

3) More concentrated urine

4) No change in quality and quantity of urine

11. Which of the following does not favour the formation of large quantities of dilute urine?

1) Atrial-natriuretic factor **[AIPMT-2015]**

2) Alcohol

3) Caffeine

4) Renin

12. Which of the following causes an increase in sodium reabsorption in the distal convoluted tubule? [AIPMT-2014]

1) Increase in aldosterone levels

2) Increase in antidiuretic hormone levels

3) Decrease in aldosterone levels

4) Decrease in antidiuretic hormone levels

13. The maximum amount of electrolytes and water (70-80 percent) from the glomerular filtrate is reabsorbed in which part of the nephron? [AIPMT (Prelims)-2012]

1) Proximal convoluted tubule

2) Descending limb of loop of Henle

3) Ascending limb of loop of Henle

4) Distal convoluted tubule

14. Which one of the following options gives the correct categorization of six animals according to the type of nitrogenous wastes (A, B. C) they give out ? [AIPMT (Mains)-2012]

	A Ammono-telic	B Ureo- telic	C Uricotelic
1)	Pigeon, Humans	Aquatic Amphibia, Lizards	Cockroach, Frog
2)	Frog, Lizards	Aquatic Amphibia, Humans	Cockroach, Pigeon
3)	Aquatic Amphibia	Frog, Humans	Pigeon, Lizards. *Cockroach*
4)	Aquatic Amphibia	Cockroach, Humans	Frog, Pigeon. Lizards

15. A fall in glomerular filtration rate (GFR) activates [AIPMT (Mains)-2012]

1) Posterior pituitary to release vasopressin

2) Juxtra glomerular cells to release renin

3) Adrenal cortex to release aldosterone

4) Adrenal medulla to release adrenaline

16. Which one of the following is not a part of a renal pyramid? [AIPMT (Prelims)-2011]

1) Loop of Henle 2) Peritubular capillaries

3) Convoluted tubules 4) Collecting ducts

17. Which one of the following correctly explains the function of a specific part of a human nephron? [AIPMT (Prelims)-2011]

1) Afferent arteriole: carries the blood away from the glomerulus towards renal vein

2) Podocytes: Create minute spaces (slit pores) for the filtration of blood into the Bowman's capsule

3) Henle's loop: most reabsorption of the major substances from the glomerular filtrate

4) Distal convoluted tubule: reabsorption of K^+ ions into the surrounding blood capillaries

18. Uricotelic mode of passing out nitrogenous wastes is found in [AIPMT (Prelims)-2011]

1) Insects and Amphibians

2) Reptiles and Birds

3) Birds and Annelids

4) Amphibians and Reptiles

19. Which one of the following statements is correct with respect to kidney function regulation? [AIPMT (Prelims)-2011]

1) During summer when body loses lot of water by evaporation, the release of ADH is suppressed

2) When someone drinks lot of water. ADH release is suppressed

3) Exposure to cold temperature stimulates ADH release

4) An increase in glomerular blood flow stimulates formation of Angiotensin II

20. Which one of the following statements m regard to the excretion by the human kidneys is correct? [AIPMT (Prelims)-2010]

1) Ascending limb of Loop of Henle is impermeable to electrolytes

2) Descending limb of Loop of Henle is impermeable to water

3) Distal convoluted tubule is incapable of reabsorbing HCO_3

4) Nearly 99 percent of the glomerular filtrate is reabsorbed by the renal tubules

21. The principal nitrogenous excretory compound in humans is synthesized[AIPMT (Prelims)-2010]

1) In the liver, but eliminated mostly through kidneys

2) In kidneys, but eliminated mostly through liver

3) In kidneys as well as eliminated by kidneys

4) In liver and also eliminated by the same through bile

22. In which one of the following organisms its excretory organs are correctly stated?

[AIPMT (Mains)-2010]

1)	Humans	- Kidneys, sebaceous glands and tear glands
2)	Earthworm	- Pharyngeal, integumentary and septal nephridia
3)	Cockroach	- Malpighian tubules and enteric caeca
4)	Frog	- Kidneys, skin and buccal epithelium

23. What will happen if the stretch receptors of the urinary bladder wall are totally removed ?

[AIPMT (Prelims)-2009]

1) Micturition will continue

2) Urine will continue to collect normally in the bladder

3) There will be no micturition

4) Urine will not collect in the bladder

24. Angiotensinogen is a protein produced and secreted by [AIPMT (Prelims)-2006]

1) Macula densa cells

2) Endothelial cells (cells lining the blood vessels)

3) Liver cells

4) Juxtaglomerular (JG) cells

25. The net pressure gradient that causes the fluid to filter out of the glomeruli into the capsule is [AIPMT (Prelims)-2005]

1) 20 mm Hg 2) 75 mm Hg

3) 30 mm Hg 4) 50 mm Hg

26. In Ornithine cycle, which of the following wastes are removed from the blood? [AIPMT (Prelims)-2005]

1) Urea and unne 2) Ammonia and urea

3) CO, and ammonia 4) CO_2 and urea

27. A person is undergoing prolonged fasting. His urine will be found to contain abnormal quantities of: [AIPMT (Prelims)-2005J

1) Fats 2) Ketones

3) Amino acids 4) Glucose

28. Two animals in which the nitrogenous wastes are excreted from body in the form of uric acid are

1) Birds and lizards

2) Frogs and cartilaginous fishes

3) Insects and bony fishes

4) Mammals and mollusc

29. Uricotelism is found in

1) Mammals and birds

2) Fishes and fresh water protozoans

3) Birds, reptiles and insects

4) Frogs and toads

30. A terrestrial animal must be able to

1) Excrete large amount of water in urine

2) Conserve water

3) Actively pump salts out through the skin

4) Excrete large amounts of salts in urine

31. Uric add is the chief nitrogenous component of the excretory products of

1) Frog 2) Man

3) Earthworm 4) Cockroach

32. If an osmoconformer animal is placed in sea water then

1) It will develop ionocytes to actively absorb the salts from outside

2) It will develop a thick body cover to prevent entry of excess of water

3) It will start passing diluted urine

4) It will change osmolarity of its body fluid

33. Contractile vacuole to pump out excess of water is found in

1) Fresh water protozoans
2) Manne protozoans
3) Parasitic protozoans 4) Lower chordates

34. In ureotelic animals, urea is formed by

1) Kreb's cycle 2) EM pathway
3) Ornithine cycle 4) Con's cycle

35. Arginase enzyme will be operating at which step of the ornithine cycle?

1) Ornithine → Urea
2) Arginine → Ornithine
3) Ornithine → Citrulline
4) Citrulline→ Arginosuccinate

36 Uric acid is produced by metabolism of

1) Adenine 2) Guanine
3) Cytosine 4) Both (1) & (2)

37. Which out of the four parts mentioned below does not constitute a part of single uriniferous tubule?

1) Distal convoluted tubule
2) Collecting duct
3) Bowman's capsule
4) Loop of Henle

38. Match the following

	Column I		Column II
a.	PCT	(i)	Functions in Na^+ and K^+ homeostasis
b.	Descending loop of Henle	(ii)	Permeable to NaCl but impermeable to Water
c.	Ascending loop of Heme	(iii)	Permeable to water but not to salt
d.	DCT		Reabsorbing about 90% of the important buffer HCO_3^- from Filtrate

1) a(i), b(ii), c(iii), d(iv)
2) a(i), b(iii), c(ii), d(iv)
3) a(iv), b(ii), c(iii), d(i)
4) a(ii),b(iii), c(i), d(iv)

39. Brush border surface is the distinct feature of which of the following part of nephron?

1) PCT
2) Ascending limb of loop of Henle
3) DCT
4) Collecting duct

40. Which of the following statement is not true?

1) Descending limb of loop of Henle is permeable to urea
2) DCT functions in K^+, Na^+ homeostasis
3) Descending limb is impermeable to water
4) Loop of Henle is largely responsible for concentrating urine

41. Hypertonicity of filtrate is minimum at

1) Base of loop of henle
2) Inner most part of medulla
3) Outer part of medulla
4) Cortical region

42. As the glomerular filtrate courses the tubules, its composition and osmotic concentration changes, due to tubular reabsorption. Which of the following is incorrect match regarding the segment of nephron and osmotic concentration of filtrate?

	Segment of nephron	Osmotic concentration of filtrate
1)	Proximal convoluted tubule	Isotonic to blood plasma
2)	Descending limb of Henle's loop	Hypertonic
3)	Ascending limb of Henle's loop	Hypotonic
4)	Bowman's capsule	Hypotonic

43. Concentration of urine depends upon which of the following?

1) Bowman s capsule

2) Length of Henle's loop

3) P.C.T.

4) Network of capillaries arising from glomerulus

44. If Henle's loop were absent from mammalian nephron, which of the following is to be expected?

1) There will be no urine formation

2) There will be hardly any change in the quality and quantity of urine formed

3) The urine will be more concentrated

4) The urine will be more dilute

45. Which of the following changes can occur in response to increased Angiotensin-I I level?

1) Increase in the glomerular hydrostatic pressure (GHP)

2) Inhibition of aldosterone

3) Decrease in the GFR

4) Decrease in BCOP

46. Which one is mainly responsible for absorption of Na^+ m the PCT part of nephron?

1) Angiotensin-II 2) Angiotensin-I

3) Aldosterone

4) Atrial Natriuretic Factor (ANF)

47. In response to decrease in blood volume and blood pressure which of the following do not occur?

1) Secretion of renin

2) Secretion of aldosterone

3) Secretion of vasopressin

4) Secretion of ANF

48. Which of the following is not a feature of cortical nephron?

1) These are more common, approximately 85% of nephrons

2) Their glomeruli are in outer cortex

3) Their loop of Henle extend to a short distance into the medulla

4) They are associated with vasa recta

49. A condition of failure-of kidney to form urine is called

1) Anuria 2) Deamination

3) Entropy 4) Uraemia

50. A person who is on a long hunger strike and is surviving only on water, will have

1) Less amino acids in his urine

2) More glucose in his blood

3) Less urea in his urine

4) More sodium in his urine

LEVEL-3 KEY

1	2	3	4	5	6	7	8	9	10
3	4	2	3	2	3	2	2	1	2
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
4	1	1	3	2	3	2	2	2	4
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
1	2	3	3	1	3	2	1	3	2
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
4	4	1	3	2	4	2	3	1	3
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
4	4	2	4	1	1	4	4	1	3

LOCOMOTION AND MOVEMENT

LEVEL-1

1. What is the purpose of locomotion performed by animals?

I. Search of food

II. Search of shelter

III. Search of mate

IV. Search of suitable breeding grounds

V. Search of favourable climate conditions

VI. Escaping from enemies/predators

Choose the correct option

1) All except V

2) All except IV

3) All except II 4) All of these

2. Streaming of the cytoplasm/cyclosis is seen in

1) Amoeba

2) Earthworm

3) Nereis 4) Leech

3. An individual sarcomere of myofibril consists of

1) Overlapping actin and myosin

2) A stack of actin fibres

3) A stack of myosin units

4) Overlapping actin and relaxin

4. Which of the following statements are true for ciliary movements?

1) They takes part in the propulsion of excretory products

2) They present in trachea, vasa efferentia and oviducts

3) They are seen in Paramecium and other ciliates

4) All of the above

5. Which ribs show 'bucket- handle' type of movement?

1) Rib no. 1-2 2) Rib no.3-5

3) Rib no. 6-10 4) Rib no. 11-12

6. In a …A… state, the edge of thin filaments on either side of thick filaments …B… overlap the free ends of …C… filaments leaving the central part of thick filaments. This central part of thick filament, not overlapped by thin filaments is called …D… zone.

Choose the correct options to fill the gaps A, B, C and D, so as to complete the given NCERT statement

1) A-resting, B-partially, C-thick, D-H

2) A-resting B-partially, C-thick, D-A

3) A-resting, B-partially, C-thick, D-I

4) A-resting, B-partially, C-thick, D-M

7. Arrange the following steps of muscle contraction in the sequence of events occurring first

I. Receptor sites on sarcolemma

II. Nerve impulse

III. Release of Ca^{2+}

IV. Acetylcholine release

V. Shortening of sarcomere

VI. Synaptic cleft

VII. Spread of impulse over sarcolemma on T-tubule **The correct option is**

1) II → IV → VI → I → VII → III → V

2) II → IV → I → VI → VII → III → V

3) II → IV → I → VI → VII → V → III

4) IV → II → I → VI → VII → V → III

8. Arrange the given steps of muscle contraction in the series of events from first to last

I. Myosin head binds to the exposed active site on action to form a cross bridge

II. The Z-line attached to these actin are also pulled in wards there by causing shortening of sarcomere also called contraction

III. This pulls the attached actin filaments towards the centre of A -band The correct option is

1) I → II → III 2) III → II → I

3) I → III → II 4) III→ I → II

9. In the resting state of muscles the troponin

1) Active site on actin filament

2) Terminal site on actin filament

3) Terminal site on actin tropomyosin

4) Middle site on actin tropomyosin

10. Where the troponin is found during muscle contraction?

1) Myosin filament 2) Meromyosin

3) Tropomyosin 4) T-tubule

11. Sliding filament theory was given by

1) AF Huxley and T Huxley

2) Leeuwenhoek and Hooke

3) AF Huxley and HF Huxley

4) HF Huxley and Robert Hooke

12. Striped muscles are characterized by

1) Syncytial 2) Spindle shape

3) Uninucleate 4) None of these

13. Relaxation of the muscle takes place due to

I. pumping of Ca2+ ions in sarcoplasmic reticulum

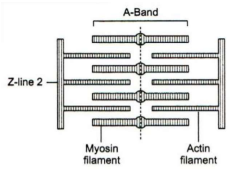
II. presence of ATP

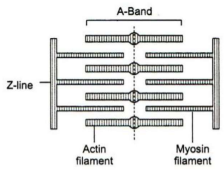
III. confirmational changes in troponin and masking the actin filament Option containing correct statement is

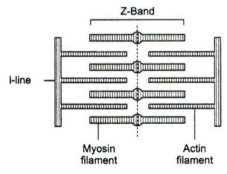
1) I and III 2) I and II

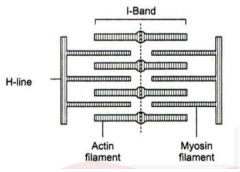
3) II and III 4) I, II and III

14. Identify the correctly labeled diagram

1) 

2) 

3) 

4) 

15. Striated appearance of the myofibrils is due to

1) Actin proteins 2) Myosin proteins

3) Both (1) and (2) 4) None of these

16. Largest muscle in the human body is

1) Sartorius 2) Gluteus

3) Stapedius 4) Masseter

17. Globular head with a short arm and a tail are the two imperfect part of

1) F-actin 2) G-actin

3) Tropomyosin 4) Meromyosin

18. Head of myosin monomer consists of

I. actin binding sites II. ATP binding sites

III. ADP binding sites

IV. AMP binding sites

Select the correct options

1) I and II 2) III and IV

3) I and IV 4) II and IV

19. Aerobic muscles called .A. and anaerobic muscles are called …B… . Here A and B refers to

1) A-red fibres; B-white fibres

2) A-white fibres; B-red fibres

3) A-white fibres; B-black fibres

4) A-red fibres; B-black fibres

20. Muscle pump is

1) Beating of heart

2) Squeezing effect of muscles upon veins running through them

3) Peristaltic wave that travel along the alimentary canal

4) None of the above

21. The set of ions necessary for muscle contraction is

1) Ca2+ and Mg^{2+} 2) Na^{+} and Mg^{2+}

3) Na^{+} and K^{+} 4) Na^{+} and Ca^{2+}

22. Muscle is attached to bone by

1) Tendon 2) Ligament

3) Insertion 4) Cartilage

23. Mechanism of muscle contraction is best explained by

1) Physical filament theory

2) Chemical filament theory

3) Sliding filament theory

4) Jumping filament theory

24. Latissimus dorsi muscles are

1) Muscles of fore arm

2) Muscles of lower jaw

3) Muscles of chest

4) Muscles of shoulder

25. I-bands of myofibrils are bisected by

1) A-bands 2) H-zone

3) Z-lines 4) M-lines

26. Both proteins, actin and myosin are arranged in a rod-like structure in the muscles

1) Radially 2) Parallelly

3) Horizontally 4) Obliquely

27. Action potential in sarcolemma of muscles causes the release of

1) Na^{+} 2) Cr 3) Ca^{2+} 4) HCO_3^{-}

28. During muscles contraction

1) Thick filaments slide over thin filaments

2) I-band gets reduced

3) Both (1) and (2)

4) None of the above

29. Which of the following statements are false regarding the muscle structure?

I. In the centre of each I-band is an elastic fibre (Z-line) which bisects it

II. Thin filament are firmly attached to the Z-line

III. M-line is a fibrous membrane in the middle of A-band

IV. A sarcomere comprises one full-A band and two half I-bands

1) I and II 2) III and IV

3) II and III 4) None of these

30. Actin binding sites are located on

1) Troponin 2) Tropomyosin

3) Meromyosin 4) Both (2) and (3)

31. Select the correct statement with reference to muscle structure

I. Each myosin is a polymerized protein

II. Many meromyosin constitutes one thick filament (myosin)

III. Each meromyosin's tail is called heavy meromyosin (HMM) and head is called light meromyosin (LMM)

IV. The globular head is an active ATPase enzyme and has binding sites for ATP and active sites for actin

Choose the option with correct statements

1) All except I and II

2) All except III and IV

3) All except III

4) All except I and IV

32. Which ion binds with troponin during muscle contraction?

1) HCO_3^- 2) Ca^{2+} 3) Cl^- 4) Na^+

33. Fascicles in human/animal are the

1) Blood capillaries 2) Muscle bundles
3) Intercalated discs 4) Muscle cytoplasm

34. The region at the ends of the A-band of two adjoining sarcomeres is called

1) H-zone 2) Z-band 3) I-band 4) M-zone

35. The membrane sarcolemma is found over

1) Heart 2) Muscle fiber
3) Both (1) and (2) 4) Nerve fiber

36. Each myofibrils of muscles contains

1) Regular dark bands
2) Regular light bands
3) Both (1) and (2)
4) Alternate dark and light bands

37. Identify the muscle which represents the following characteristics and choose the correct option accordingly

I. Transportation of food through the digestive tract

II. Transportation of gametes through the genital tract

1) Skeletal muscles 2) Visceral muscles
3) Cardiac muscles 4) Striated muscles

38. The sensation of fatigue in the muscles after prolonged strenuous physical work, is caused by

1) A decrease in the supply of oxygen
2) Minor were and tear of muscle fibers
3) The depletion of glucose
4) the accumulation of lactic acid

39. Lactic acid in muscles is formed due to

1) Aerobic breakdown of sucrose
2) Anaerobic breakdown of glycogen
3) Anaerobic breakdown of galactose
4) Anaerobic breakdown of fructose

40. Which of the following statements is true with reference to the structure of a muscle fibre?

1) H-zone is present in the middle of A-band
2) A-band is present in the middle of sarcomere
3) M-line is present in the middle of H-zone
4) All of the above

41. Muscle contains a red coloured oxygen containing pigment called

1) Haemoglobin 2) Myoglobin
3) Haemocyanin 4) Both (1) and (2)

42. Muscular dystrophy in humans is a

1) Viral disease 2) Bacterial disease
3) Genetic disease 4) Fungal disease

43. The region between two successive Z-lines in a myofibril is

1) Sarcomere 2) Sarcosome
3) Fascia 4) Anisotropic band

44. Contraction of the muscles takes place by the sliding of

1) Thick filament over thin filament
2) Thin filament over thick filament
3) Thin filament over thin filament
4) Thick filament over thick filament

45. Cross arms of the myosin monomer consists of

1) Outward projection of G-actin filament
2) Outward projection of the head region of meromyosin
3) Outward projection of the tail region of meromyosin
4) Both (2) and (3)

46. Choose the correct statements regarding muscle proteins

I. Actin is a thin filament and made up of two F-actins

II. The complex protein, tropomyosin is distributed at regular intervals of troponin

III. Myosin is a thick filament which is not a polymerized protein

IV. The globular head of meromyosin consists of Light Meromyosin (LMM) Option containing correct statement is

1) I, II and III 2) I, II and IV

3) Only I 4) II and IV

47. During skeletal muscle contraction following events occur-

I. I-band shortens

II. A-band shortens

III. H-zone shortens

IV. Sarcomere contract

V. ATP changes to ADP and Pi

Choose the option with incorrect events

1) Only I 2) Only III

3) IV and V 4) Only II

48. Match the following columns and select the correct option from the codes given below-

	Column-I		Column- II
(1)	Pair of muscles act in opposition to each other	(1)	Synergist
(2)	Pair of muscles act together	(2)	Antagonist
(3)	Muscles that act more powerfully during any given movement	(3)	Prime movers

	A	B	C
1)	1	2	3
2)	3	1	2
3)	2	1	3
4)	2	3	1

49. Intervertebral disc consists of a shock absorber connective tissue known as

1) Hyaline cartilage 2) Elastic cartilage

3) Fibro cartilage 4) Reticulo cartilage

50. Find out the correct order of number of bones in the parts of skull such as cranial bone, facial bone, hyoid bone and middle ear bone and middle ear bone respectively.

1) 14, 8,1 and 3 2) 3, 8,14 and 1

3) 14, 8, 3 and 1 4) 8,14, land 3

51. Haversian canal is found in the bone of

1) Mammals 2) Reptiles

3) Aves 4) Pisces

52. Ribs that are attached to the thoracic vertebrate and ventrally connected to the sternum with the help of hyaline cartilage are called

1) True ribs 2) False rib

3) Floating ribs 4) Rib cage

53. Common among all mammals is

1) Ventral nerve cord

2) Seven cervical vertebrae

3) All are carnivores

4) All are producers

54. In which of the following, growth is possible through increase in volume?

1) Cartilage 2) Striated muscle

3) Never fiber 4) Lens of eye

55. Breast bone is also called

1) Sternum 2) True rib

3) False rib 4) Axis vertebrae

56. Which is not the function of endoskeleton?

1) Sight 2) Hearing

3) Locomotion 4) Production of RBCs

57. Neural canal is present in

1) Humerus 2) Tibio-fibula

3) Vertebral column 4) Cranial bones

58. Skeletal muscles are closely associated with the …A… components of the body. They have …B… appearance under the microscope and hence are called …C… muscles Choose the correct options to fill A, B and C, so as to complete the given NCERT statement

1) A-muscular, B-stripped, C-striated

2) A-visceral, B-stripped, C-striated

3) A-skeletal, B-stripped, C-striated

4) A-microfibrillar, B-stripped, C-striated

59. Select the correct function of vertebral column in humans

1) Protects the spinal cord

2) Supports the head

3) Surface as an attachment for ribs and

4) All of the above musculature of back

60. Acetabulum is

1) Ilium and incus 2) Ilium and ischium

3) Incus and ischium 4) Incus, ischium and llium

61. First vertebrae in human is called

1) Axis 2) Atlas

3) Lumber 4) Cervical

62. Pick out the correct match.

1) Sternum-14 2) Pelvis-3

3) Ribs-20 4) Face-5

63. Pelvic girdle of rabbit consists of

1) Ilium, ischium and pubis

2) Ilium, ischium and coracoids

3) Coracoid, scapula and clavicle

4) Ilium, coracoid and scapula

64. Choose the wrongly matched option

1) Frontal bone-1 2) Parietal bones-2

3) Temporal bone-1 4) Sphenoid bone-1

65. Our vertebral column is formed by the

1) 26 serially arranged units called vertebrae

2) 27 serially arranged units called vertebrae

3) 33 serially arranged units called

4) 35 serially arranged units called vertebrae vertebrae

66. In a vertebrate, which germ layer forms the skeleton muscles?

1) Ectoderm 2) Endoderm

3) Mesoderm 4) Both (1) and (3)

67. End of long bones are covered with

1) Muscle 2) Cartilage

3) Adipose tissue 4) Bone marrow

68. Pelvic girdle consists of two coxal bones and each coxal bone consists

I. ilium II. Incus III. ischium IV. pubis

Choose the correct option containing all correct bones

1) I, II and III 2) II, III, and IV

3) I, III and IV 4) I, II and IV

69. Tick the wrong option regarding human beings

1) Cranial bones-12

2) Facial bones-14

3) Mendible bones-1

4) Zygomatic bones-2

70. According to the functions the skeletal muscles is/are

1) Antagonists

2) Synergists

3) Prime movers

4) All of these

71. In which of the following condition, progressive degeneration of skeletal muscles happens?

1) Myasthenia gravis 2) Muscular dystrophy
3) Tetany 4) Arthritis

72. Volkmann's canals occur in

1) Internal ear 2) liver
3) Cartilage 4)Bone

73. The longest bone of the human body is

1) Humerus 2) Tibia
3) Vertebra 4) Femur

74. Nucleus pulposes is found in

1) Brain 2) Nucleus
3) Intervertebral disc 4) Liver

75. Functional unit of skeletal muscle is called

1) Sarcomere 2) Twitch
3) Z-band 4) None of these

76. Human skeletal system consists of

1) 200 bones 2) 300 bones
3) 206 bones 4) 250 bones

77. Which of the following features differentiate bone from cartilage?

1) Haversian canal 2) Blood vessel
3) Lymph vessel 4) All of these

78. Which one of the following is a sesamoid bone?

1) Pelvis 2) Patella
3) Pterygoid 4) Pectoral girdle

79. Ribs attached to sternum are

1) First seven pairs
2) All ten ribs
3) First ten rib pairs 4) First five rib pairs

80. The 'wish bone' or 'merry throught bone' of bird is

1) Sternum 2) Scapula
3) Coracoid 4) Clavicle

81. Each human limb is made of

1) 60 bones
2) 50 bones
3) 40 bones 4) 30 bones

82. There are seven cervical vertebrae in almost

1) All vertebrate
2) All amphibian
3) All reptile 4) All mammals

83. Bones of pectoral and pelvic girdle helps in the articulation of

1) Upper limbs
2) Lower limbs
3) Both (1) and (2) 4) None of these

84. Match the following columns

	Column-I	Column- II
(1)	True ribs	(1) 14,12 pairs
(2)	False ribs	(2) 8, 9,10 pairs
(3)	Floating ribs	(3) First 7 pairs

	A	B	C
1)	1	2	3
2)	1	3	2
3)	3	2	1
4)	3	1	2

85. Match the following columns

	Column-I	Column- II
(1)	Cranium	(1) 22
(2)	Skull (facial and cranial)	(2) 8
(3)	Face	(3) 14
(4)	Hindlimb	(4) 12 pairs
(E)	Ribs	(5) 30

	A	B	C	D	E
1)	2	1	3	5	4
2)	1	2	3	4	4
3)	5	4	3	2	4
4)	5	3	4	1	4

86. Match the following columns

Column-I	Column- II
(A) Cervical	(1) 1
(B) Thoracic	(2) 1
(C) Lumber	(3) 5
(D) Sacral	(4) 12
(E) Coccygeal	(5) 7

	A	B	C	D	E
1)	1	2	3	4	5
2)	5	4	3	2	5
3)	5	3	4	2	5
4)	1	3	2	5	5

87. The joint of radio-ulna with the upper arm is

1) hinge joint
2) pivot joint
3) socket joint
4) None of these

88. Which of the following statements about the joints of humans is false?

1) Joints are essential for all types of movements involving bony parts
2) Joints are the contact between bones or between bones and cartilages
3) Fibrous joints are immovable
4) Cartilaginous joints permits great movement

89. Cartilaginous joints in humans

1) Permit any movement
2) Permit little movement
3) Permit no movement
4) All of these

90. This joint is made for power

1) Joint between vertebrae
2) Mandibular joint
3) Knee joint
4) Suture in cranium

91. Which of the following pairs is correctly matched?

1) Cartilaginous joint- skull bones
2) Hinge joint - Between vertebrae
3) Fibrous joint - Between phalanges
4) Gliding joint - Between zygapophyses of the successive vertebrae

92. Suturus of human skull is

1) Fibrous joint 2) Hinge joint
3) Synovial joint 4) Pivots joint

93. Fibrous joints in humans

1) Allows any movement
2) Allows little movement
3) Don't allow any movement
4) None of the above

94. Synovial fluid is present in

1) Fibrous joints
2) Cartilaginous joints
3) Freely movable joints
4) Intervertebral joints

95. Elbow joint is an example of

1) Pivot joint
2) Hinge joint
3) Gliding joint
4) Ball and socket joint

96. Joints are classified into three major types. They are

I. Fibrous joint
II. Hinge joint
III. Cartilaginous joint
IV. Pivot joint
V. Synovial joint

Select the option containing correct articles

1) I, III and V 2) II, III and IV
3) I, II and III 4) III, IV and V

97. Choose the correct statements

1) Synovial joints are freely movable

2) Ball and socket, and hinge joints are the synovial joints

3) Synovial joints are characterized by synovial cavity with fluid between the articulating surface of the two bones

4) All of the above

98. Where the saddle joints are presents in humans?

1) Between carpals and matacarpals

2) Atlas and axis

3) Radius and ulna

4) Carpals and phallanges

99. Match the following and choose the correct option.

Column-I	Column- II
(A) Ball and socker	(1) Carpal and metacarpal of thumb
(B) Hinge	(2) Atlas and axis
(C) Pivot	(3) Frontal and parietal
(D) Saddle	(4) Knee
	(5) Humerus and pectoral Girdle

	A	B	C	D
1)	5	4	2	1
2)	1	3	4	5
3)	5	4	3	1
4)	1	2	5	4

100. Gout is a disease that affects the joints and leads to arthritis. It is associated with an abnormality of

1) Pyrimidine metabolism

2) Purine metabolism

3) Fat metabolism 4) Protein metabolism

LEVEL-1 KEY

1	2	3	4	5	6	7	8	9	10
4	1	1	4	3	1	1	3	1	3
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
3	1	4	1	3	2	4	1	1	2
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
1	1	3	4	3	2	3	2	4	2
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
3	2	2	3	2	4	2	4	2	4
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
2	3	1	2	2	3	4	3	3	4
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
1	1	2	1	1	1	3	3	4	4
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
2	2	1	3	1	3	2	3	1	4
71	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**
2	4	4	3	1	3	4	2	1	4
81	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**
4	4	3	3	1	2	1	4	2	2
91	**92**	**93**	**94**	**95**	**96**	**97**	**98**	**99**	**100**
4	1	3	3	2	1	4	1	1	2

LEVEL-2

1. **During the event of muscle contraction which event does not occur?**
   1) Cross bridges are formed
   2) ATP undergoes hydrolysis
   3) Ca^{2+} ions are released from SR
   4) Thick filaments slide inward towards the M-line

2. **Which of the following is incorrect match regarding the bones and their number in humans?**

1)	False ribs	The 8th. 9th and 10th pair of ribs
2)	Vertebrochondral ribs	11th and 12th pair of ribs
3)	Carpals	Eight in each wrist
4)	True ribs	First seven pairs of ribs

3. **Choose the odd one w.r.t. scapula**
   1) Acromion process
   2) Odontoid process
   3) Coracoid process
   4) Pectoral gridle

4. **Which proteins will be included in H-zone of myofilaments if sarcomere is in relaxed state?**
   1) Myosin and actin
   2) Tropomyosin, actin and troponin
   3) Myosin
   4) Actin

5. **The joint between carpal and metacarpal of thumb in man is**
   1) Ellipsoid
   2) Saddle
   3) Huge 4) Pivot

6. **What type of contraction is involved when we push a wall or weight, but it is not get displaced?**
   1) Isotonic 2) Isometric
   3) Twitch 4) Tetany

7. **Progressive degeneration of skeletal muscles due to genetic disorder is**
   1) Myasthenia gravis
   2) Muscular dystrophy
   3) Tetany
   4) Gout

8. **Select the correct match of the type of the joint with its location.**

1)	Gliding joint	Between carpals
2)	Cartilaginous joint	Frontal and parietal bone of skull
3)	Pivot joint	3th and 4th cervical vertebrae
4)	Hinge joint	Humerus and pectoral girdle

9. A motor neuron along with the muscle fibres connected to it. Constitute
   1) Neuromuscular junction
   2) Motor unit
   3) Single unit muscle fibre
   4) Multi unit muscle fibre

10. **Myasthenia gravis is autoimmune disorder in which (A) tire easily and is caused by binding of antibodies to a (B)**
   1) A - Smooth muscle, B - Nicotine receptors
   2) A - Skeletal muscle, B - Acetylcholine receptors
   3) A - Cardiac muscle, B - Adrenaline receptors
   4) A - Skeletal muscle. B - Noradrenaline receptors

11. If a muscle fibre contracts, which of the following will not occur?

1) A-bands retain the length
2) Z-lines move close together
3) Change in size of l-band
4) Length of actin filament increases

12 Which of the following bones is/are not paired?

1) Maxilla 2) Nasal
3) Vomer 4) Palatine

13. Knee cap is formed of a triangular bone patella, which is modified

1) Cartilage 2) Skin
3) Tendon 4) Ligament

14. Movement of atlanto-occipital joint is an example of

1) Ellipsoidal joint 2) Gliding joint
3) Hinge joint 4) Bal and socket joint

15. Dermal, S-shaped with 2 curvatures one of which interacts with sternum is

1) Pelvic girdle of mammals
2) Skull of frog
3) Clavicle 4) Scapula

16. Seled the true statement

1) A band is present in the middle of sarcomere
2) H zone is present in the middle of A – band
3) M line is present in the middle of H – zone
4) Al of these

17. In which of the following functions, are white muscles not used?

1) Moving of eye balls
2) Fast and strenuous work for short duration
3) For sustained work at a slow rate for a prolonged duration
4) Fast flight in sparrows

18. The backward bending of the shank is worked out by

1) Gluteus maximus
2) Quadriceps femoris muscles
3) Adductor group of muscles
4) Gastrocnemius and hamstring

19. Which one is not the character of red skeletal muscle fibres?

1) Smaller diameter
2) More mitochondria
3) More sarcoplasmic reticulum
4) More blood capillaries

20. Which of the following is an example of multiunit smooth muscles?

1) Smooth muscles in uterine wall
2) Smooth muscles in the intestinal wall
3) Masseter muscle of the jaw
4)Arrector pili muscles of skin

21. Least blood supply will be present in case of

1) Skeletal muscles 2) Smooth muscles
3) Cardiac muscles 4) Striated muscles

22. Which of the following muscles are not under the voluntary control of nervous system?

1) Pharynx
2) Wal of urinary bladder
3) Anterior end of oesophagus
4) Tongue

23. During muscle contraction in a skeletal muscle fibre. Ca^{2+} combines with

1) TpT 2) TpC
3) Tpl 4) Tropomyosin

24. The contraction of muscle of shortest duration is seen in

1) Jaws 2) Eyelids
3) Heart 4) Intestine

25. In a contracted skeletal muscle fibre

1) M line disappears
2) H-zone elongates
3) I-band remains constant
4) A-band disappears

26. Which one of the following ions is essential for muscular contraction?

1) Na^+, Ca^{++} 2) Mg^{++}, Ca^{++}
3) Mg^{++}, K^+ 4) K^+, Na^+

27. The potential difference across the membrane of a relaxed muscle fibre is called resting potential. In skeletal muscle fibre, it amounts to about

1) -90 mV 2) 50 mV
3) 100 mV 4) 50-100 mV

28. Con cycle involves

1) Liver only
2) Muscles only
3) Both liver and muscles
4) Bones

29 Foramen magnum is associated with which bone?

1) Frontal 2) Parietal
3) Temporal 4) Occipital

30. Tongue bone is

1) Mandible 2) Hyoid
3) Flat bone 4) Coccyx

31. Number of anterior curves present with human vertebral column is

1) 2 2) 4
3) 6 4) 1

32. The heaviest and largest vertebrae in humans are

1) Thoracic 2) Lumbar
3) Cervical 4) Sacral

33. Type of vertebrae in case of human is

1) Amphiplatyan 2) Procoelus
3) Amphicoelus 4) Heteroooelus

34. Deltoid ridge is found in which one of the following bones?

1) Radius 2) Tibia
3) Femur 4) Humerus

35. Olecranon fossa is present with

1) Radius 2) Ulna
3) Humerus 4) Femur

36. Phalangeal formula for the hand of a human is

1) 23333 2) 33333
3) 33322 4) 32333

37. Obturator foramen is enclosed between

1) Ilium, ischium and pubis
2) Ischium and pubis
3) Ilium and ischium
4) Ilium and pubis

38. Which of the following are involved in the formation of acetabulum?

a. Ilium
b. Ischium
c. Pubis

1) a & b only
2) b & c only
3) a & c only 4) a. b & c

39. Select the odd one w.r.t girdle bones

1) Clavicle 2) Ischium
3) Ileum 4) Pubis

40. Which one of the following is a viral disease that weakens the muscles?

1) Myasthenia gravis
2) Poliomyelitis
3) Muscular dystrophy
4) Muscular hypertrophy

			LEVEL-2 KEY						
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
4	2	2	3	2	2	2	1	2	2
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
4	3	1	1	3	4	3	4	3	4
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
2	2	2	2	1	2	1	3	4	2
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
1	2	1	4	3	1	2	4	3	2

LEVEL-3(PREVIOUS YEARQUESTIONS)

1. Match the following joints with the bones involved:

(a)	Gliding joint	(i)	Between carpal and metacarpal of thumb
(b)	Hinge joint	(ii)	Between Atlas and Axis
(c)	Pivot joint	(ii)	Between the Carpals
(d)	Saddle joint	(iv)	Between Humerus and Ulna

Select the correct option from the following : [NEET-2019 (Odisha)]

1) (a)-(i),(b)-(iii),(c)-(ii),(d)-(iv)

2) (a)-(iii),(b)-(iv),(c)-(ii),(d)-(i)

3) (a)-(iv),(b)-(i),(c)-(ii),(d)-(iii)

4) (a)-(iv),(b)-(ii),(c)-(iii),(d)-(i)

2. Which of the following diseases is an autoimmune disorder ?[NEET-2019 (Odisha)]

1) Gout 2) Myasthenia gravis

3) Arthritis 4) Osteoporosis

3. Which of the following muscular disorders is inherited? [NEET-2019]

1) Tetany

2) Muscular dystrophy

3) Myasthenia gravis 4) Botulism

4. Select the correct option [NEET-2019]

1) 8th, 9th and 10th pairs of ribs articulate directly with the sternum.

2) 11th and 12th pairs of ribs are connected to the sternum with the help of hyaline cartilage.

3) Each rib is a flat thin bone and all the ribs are connected dorsally to the thoracic vertebrae and ventrally to the sternum.

4) There are seven pairs of vertebrosternal, three pairs of vertebrochondral and two pairs of vertebral ribs.

5. The pivot joint between atlas and axis is a type of [NEET-2017]

1) Fibrous joint

2) Cartilaginous joint

3) Synovial joint

4) Saddle joint

6. Out of "X" pairs of ribs in humans only "Y" pairs are true ribs. Select the option that correctly represents values of X and Y and provides their explanation [NEET-2017]

1)	X =12, Y =7	True ribs are attached dorsally to vertebral column and ventrally to the sternum
2)	X =12. Y =5	True ribs are attached dorsally to vertebral column and sternum on the two ends
3)	X =24. Y =7	True ribs are dorsally attached to vertebral column but are free on ventral side
4)	X =24, Y =12	True ribs are dorsally attached to vertebral column but are free on ventral side

7. Name the ion responsible for unmasking of active sites for myosin for cross-bridge activity during muscle contraction.

1) Calcium **[NEET (Phase-2)-2016]**

2) Magnesium

3) Sodium

4) Potassium

8. Osteoporosis, an age-related disease of skeletal system, may occur due to [NEET (Phase-2)-2016]

1) Immune disorder affecting neuromuscular junction leads to fatigue

2) High concentration of Ca^{++} and Na^{+}

3) Decreased level of estrogen

4) Accumulation of uric acid leads to inflammation of joints

9. Lack of relaxation between successive stimuli in sustained muscle contraction is known as

1) Tonus **[NEET-2016]**

2) Spasm

3) Fatigue

4) Tetanus

10. Which of the following is not a function of the skeletal system? [Re-AIPMT-2015]

1) Locomotion

2) Production of erythrocytes

3) Storage of minerals

4) Production of body heat

11. Which of the following joints would allow no movement? (Re-AIPMT-2015)

1) Ball and Socket joint

2) Fibrous joint

3) Cartilaginous joint

4) Synovial joint

12. Sliding filament theory can be best explained as [AIPMT-2015]

1) When myofilaments slide pass each other, Myosin filaments shorten while Actin filaments do not shorten

2) When myofilaments slide pass each other Actin filaments shorten, while Myosin filament do not shorten

3) Actin and Myosin filaments shorten and slide pass each other

4) Actin and Myosin filaments do not shorten but rather slide pass each other

13. Glenoid cavity articulates [AIPMT-2015]

1) Humerus with scapula

2) Clavicle with acromion

3) Scapula with acromion

4) Clavicle with scapula

14. Select the correct matching of the type of the joint with its example in human skeletal system: [AIPMT-2014]

	Type of joint	Example
1)	Cartilaginous joint	- Between frontal and parietal
2)	Pivot joint	- Between third and fourth cervical vertebrae
3)	Hinge joint	- Between humerus and pectoral girdle
4)	Gliding joint	- Between carpals

15. Stimulation of a muscle fibre by a motor neuron occurs at [AIPMT-2014]

1) The neuromuscular junction

2) The transverse tubules

3) The myofibril

4) The sarcoplasmic reticulum

16. The characteristics and an example of a synovial joint in humans is: [NEET-2013]

1)	Fluid filled between two joints, provides cushion	Skull bones
2)	Fluid filed synovial cavity between two bones	Joint between atlas and axis
3)	Lymph filled between two bones, limited movement	Gliding joint between carpals
4)	Fluid cartilage between two bones. limited movements	Knee joint

17. Select the correct statement with respect to locomotion in humans: [NEET-2013]

1) Accumulation of uric acid crystals in joints causes their inflammation

2) The vertebral column has 10 thoracic vertebrae

3) The joint between adjacent vertebrae is a fibrous joint

4) A decreased level of progesterone causes osteoporosis in old people

18. The H-zone in the skeletal muscle fibre is due to [NEET-2013]

1) The central gap between myosin filaments in the A-band

2) The central gap between actin filaments extending through myosin filaments in the A-band

3) Extension of myosin filaments in the central portion of the A-band

4) The absence of myofibrils in the central portion of A-band

19. Select the correct statement regarding the specific disorder of muscular or skeletal system [AIPMT (Prelims)-2012]

1) Myasthenia gravis - Auto immune disorder which inhibits sliding of myosin filaments

2) Goof - Inflammation of joints due to extra deposition of calcium

3) Muscular dystrophy - Age related shortening of muscles

4) Osteoporosis - Decrease in bone mass and higher chances of fractures with advancing age

20. Three of the following pairs of the human skeletal parts are correctly matched with their respective inclusive skeletal category and one pair is not matched. Identify the non-matching pair [AIPMT (Mains)-2011]

	Pairs of skeletal parts	Category
1)	Humerus and ulna	Appendicular skeleton
2)	Malleus and stapes	Ear ossicles
3)	Sternum and Ribs	Axial skeleton
4)	Clavicle and Glenoid cavity	Pelvic girdle

21. The type of muscles present in our [AIPMT (Mains)-2011]

1) Thigh are striated and voluntary

2) Upper arm are smooth muscle fibres fusiform in shape

3) Heart are involuntary and unstriated smooth muscles

4) Intestine are striated and involuntary

22. Low Ca- in the body fluid may be the cause of

1) Gout **[AIPMT (Prelims)-2010]**

2) Tetany

3) Anaemia

4) Angina pectoris

23. Which one of the following pairs of structures is correctly matched with their correct description? [AIPMT (Mains)-2010]

	Structures	Description
1)	Tibia and fibula	Both form parts of knee joint
2)	Cartilage and cornea	No blood supply but do require oxygen for respiratory need
3)	Shoulder joint and elbow joint	Ban and socket type of joint
4)	Premolars and motors	20 in all and 3 rooted

24. Which one of the following is the correct description of a certain part of a normal human skeleton? [AIPMT (Mains)-2010]

1) Parietal bone and the temporal bone of the skull are joined by fibrous joint

2) First vertebra is axis which articulates with the occipital condyles

3) The 9^{th} and 10^{th} pairs of ribs are called the floating ribs

4) Glenoid cavity is a depression to which the thigh bone articulates

25. Which one of the following is correct pairing of a body part and the kind of muscle tissue that moves it? [AIPMT (Prelims)-2009]

1) Biceps of upper arm- Smooth muscle fibres

2) Abdominal wall - Smooth muscle

3) Iris -Involuntary smooth muscle

4) Heart wall - Involuntary unstriated muscle

26. Which one of the following is the correct matching of three items and their grouping category? [AIPMT (Prelims)-2009]

	Items	Group
1)	Ilium, ischium, pubis -	Coxal bones of pelvic girdle
2)	Actin, myosin, rhodopsin -	Muscle proteins
3)	Cytosine. uracil, thiamine-	Pyrimidines
4)	Malleus. incus, cochlea -	Ear ossicles

27. Elbow joint is an example of:

1) Hinge joint **[AIPMT (Prelims)-2009]**

2) Gliding joint

3) Ball and socket joint

4) Pivot joint

28. Which one of the following items gives its correct total number? [AIPMT (Prelims)-2008]

1) Cervical vertebrae in humans – 8

2) Floating ribs in humans – 4

3) Amino acids found in proteins -16

4) Types of diabetes - 3

29. In human body, which one of the following is anatomically correct? [AIPMT (Prelims)-2007]

1) Cranial nerves - 10 pairs

2) Floating ribs - 2 pairs

3) Collar bones - 3 pairs

4) Salivary glands - 1 pair

30. The contradile protein of skeletal muscle involving ATPase activity is

1) Tropomyosin **[AIPMT (Prelims)-2006]**

2) Myosin

3) α-Actnin

4) Troponin

31. An acromion process is characteristically found in the [AIPMT (Prelims)-2005]

1) Pelvic girdle of mammals

2) Skull of frog

3) Pectoral girdle of mammals

4) Sperm of mammals

32 Which of the following pairs is correctly matched? [AIPMT (Prelims)-2005]

1) Cartilaginous joint - Skull bones
2) Hinge joint - Between vertebrae
3) Fibrous joint - Between phalanges
4) Gliding joint - Between zygapophyses of the successive vertebrae

33. Which of the following are the regulatory proteins in the muscle contraction?

1) Troponin and tropomyosin
2) Troponin and actin
3) Myosin and tropomyosin
4) Actin and tropomyosin

34. Source of Ca^{2+} for muscle contraction is both sarcoplasmic (endoplasmic) reticulum as well as extracellular fluid in case of

a. Skeletal muscles b. Smooth muscles
c. Cardiac muscles

1) a only 2) b and c only
3) a and c only 4) b only

35. Which of the following is not applicable to red muscle fibres when compared to white muscle fibres?

1) Sustained contraction for long periods
2) Rich in myoglobin
3) Faster in contraction rate
4) Rich in mitochondria

36. What is common between the muscle fibers of extensor muscles of human back and those of flight muscles of the birds which remain in flight for long periods of time?

a. They are thinner, red coloured.
b. They are thicker and light coloured.
c. They have abundant mitochondria.
d. They have well developed sarcoplasmic reticulum.
e. They show slow rate of contractions for longer periods.
f. They show fast strenous activity.
g. They do not get fatigued early.
h. They get fatigued quickly.

1) a, c, e, g, are common
2) b, d, f, h are common
3) All features are common at different times
4) a, c, f, g are common

37. During muscle contraction, which of the following does not occur?

1) No change in length of anisotrophic band
2) Decrease in length of isotropic band
3) No change in length of A band
4) Decrease in length of actin myofilaments

38 What would happen if ATP suddenly were not available after the sarcomere had started to shorten?

1) Cross bridges would not be able to detach from actin
2) Muscle would remain in a state of rigidity
3) Muscle would relax immediately
4) Both (1) & (2)

39. Select the correct match regarding the specific disorder of muscular or skeletal system

1) Myasthenia gravis - Auto immune disorder which inhibits sliding of myosin filaments
2) Gout - inflammation of joints due to extra deposition of calcium
3) Muscular dystrophy - age related shortening of muscles
4) Osteoporosis - decrease in bone mass and higher chances of fractures with advancing age

40. Myasthenia gravis involves weakness of skeletal muscles. Which of the following can act as a primary treatment of it?

1) Injection of neurotransmitter acetylcholine
2) Injection of neurotransmitter adrenaline
3) Injection of acetylcholinesterase inhibitor
4) Taking protein rich diet

41. The clavicle articulates with of scapula.

1) Acromion process
2) Glenoid cavity
3) Acetabulum cavity
4) Ball and socket joint

42. Sternum is connected to ribs by

1) Bony matter
2) White fibrous cartilage
3) Hyaline cartilage
4) Areolar tissue

43. Which of the following components is a part of the pectoral girdle?

1) Sternum 2) Acetabulum
3) Glenoid cavity 4) llium

44. Total number of bones in limb of a man is

1) 24 2) 30
3) 14 4) 21

45. Bone formed by the ossification of tendon is called

1) Sesamoid bone 2) Cartilage bone
3) Investing bone 4) Replacing bone

46. The joint between atlas and axis is called

1) Angular joint 2) Hinge joint
3) Pivot joint 4) Saddle joint

47. In which of the following fractures, the bone is broken into more than two fragments, with some of the fragments losing connection with blood circulation?

1) Compound fracture
2) Greenstick fracture
3) Comminuted fracture
4) Simple fracture

48. Formation of abnormal granules called pannus are secreted by synovial membrane in case of

1) Osteoarthritis
2) Rheumatoid arthritis
3) Gout
4) Osteomyelitis

LEVEL-3 KEY

1	2	3	4	5	6	7	8	9	10
2	2	2	4	3	1	1	3	4	4
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
2	4	1	4	1	2	1	2	4	4
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
1	2	2	1	3	1	1	2	2	2
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
3	4	1	2	3	1	4	4	4	3
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**		
1	3	3	2	1	3	3	2		

CHEMICAL COORDINATION & INTEGRATION

LEVEL-1

1. Chemically hormones are

1) Biogenic amines only
2) Proteins, steroids and biogenic amines
3) Proteins only
4) Steroids only

2. Endocrine glands are also called

1) Exocrine glands
2) Holocrine glands
3) Heterocrine glands
4) Enzyme secreting glands

3. Identify which of the following are endocrine glands?

I. Liver II. Gastric gland
III. Pituitary gland IV. Thyroid

Choose the correct option

1) I and II 2) III and IV
3) I and IV 4) II and IV

4. Identify the four major hormones of GI tract. Out of the list given below

I. Gastrin II. Secretin
III. Cholecystokinin IV. ACTH
V. MSH VI. GIP

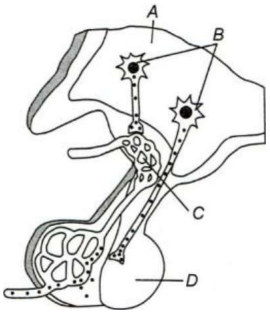
The correct option is

1) I, II, III and IV
2) II, III, IV and V
3) III, IV, V and VI 4) I, II, III and VI

5. Hormone is a/an

1) Enzyme
2) Chemical messenger
3) Excretory product 4) Glandular secretion

6. Identify A to D in the given figure and choose the correct combination



1) A-Hypothalamic neuron, B-Hypothalamus, C-Portal circulation, D-Posterior pituitary
2) A-Hypothalamus, B-Hypothalamic neuron, C-Portal circulation, D-Posterior pituitary
3) A-Hypothalamus, B-Hypothalamic neuron, C-Posterior pituitary, D-Portal circulation
4) A-Hypothalamus, B-Hypothalamic neuron, C-Posterior pituitary, D-Neurohypophysis

7. The hormone oxytocin and vasopressin are secreted by

1) Neurohypophysis 2) Adenohypophysis
3) Hypothalamus 4) Adrenal medulla

8. Somatostatin from hypothalamus gland?

1) Activates the release of growth hormone
2) Inhibits the release of growth hormone
3) Inhibits the release of enzymes in the
4) Activates the release of enzymes pineal gland digestive tract

9. Hormones originating in the hypothalamic neurons, pass through …A… and are released from their …B… endings. These hormones reach the …C… gland through a …D… circulatory system and regulate the functions of

the …E… pituitary

Select the correct combination of A, B and C in reference to above paragraph

1) A-axons, B-nerve, C-pituitary, D-portal,

2) A-nerve, B-axons, C-pituitary, D-portal, EE-posterior anterior

3) A-nerves, B-axons, C-pituitary, D-portal,

4) A-axons, B-nerve, C-pituitary, D-portal, EE-posterior anterior

10. Which of the following statements is correct regarding hypothalamic control of pituitary function?

1) All the hypothalamic hormones are synthesized and secreted by neurons

2) Blood flows from the anterior pituitary to the hypothalamus in the portal vessels

3) The hypothalamic releasing hormones reach the general circulation in significant amounts

4) Loss of dopaminergic neurons in the hypothalamus is likely to lead to a fall in the secretion of prolactin

11. Secretion is under control of neurosecretory nerve axons in

1) Pineal gland 2) Adrenal cortex

3) Anterior pituitary 4) Posterior pituitary

12. Hormone which is responsible for contraction of uterus is

1) Vasopressin 2) Oxytocin

3) Thyrotrophin 4) Gonadotrophin

13. Which one of the following is anti abortion hormone?

1) Relaxin 2) Progesterone

3) Estrogen 4) Epinephrine

14. In human adults females, oxytocin

1) Is secreted by anterior pituitary

2) Stimulates growth of mammary glands

3) Stimulate pituitary to secrete vasopressin

4) Causes strong uterine contractions during parturition

15. ADH regulates the permeability of

1) Proximal convoluted tubule

2) Collecting tubule and distal convoluted tubule

3) Ascending limb of loop of Henle

4) Descending limb of loop of Henle

16. Storing and release of vasopressin and oxytocin is done by

1) Adenohypophysis 2) Neurohypophysis

3) Hypothalamus 4) Thyroid

17. Absorption of water in DCT is controlled by

1) ADH 2) ACTH

3) LH 4) Oxytocin

18. Acromegaly is due to hypersecretion of a hormone secreted from

1) Neurohypophysis 2) Adenohypophysis

3) Cells of Leydig 4) Pars intermedia

19. Foetal ejection reflex in human female is induced by

1) Pressure exerted by amniotic fluid

2) Release of oxytocin from pituitary

3) Fully developed foetus and placenta

4) Differentiation of mammary glands

20. Functions of oxytocin is/are

1) Smooth muscle contraction

2) Contraction of uterus

3) Milk ejection

4) All of the above

21. Accumulation and release centre of pituitary gland hormones is

1) Neurohypophysis 2) Adenohypophysis

3) Hypothalamus 4) Pars distalis

22. Which is correct regarding the functions of posterior pituitary gland?

1) The posterior pituitary gland secretes growth hormone

2) The posterior pituitary secretes epinephrine

3) Vasopressin regulates the uptake of water by the cells of the collecting duct

4) Oxytocin stimulates milk production

23. Mammalian prolactin is secreted by

1) Adenohypophysis

2) Neurohypophysis

3) Adrenal cortex

4) Adrenal medulla

24. Hormone responsible for the secretion of milk after parturition is

1) ICSH 2) Prolactin

3) ACTH 4) LH

25. Hormone prolactin is secreted by

1) Posterior pituitary

2) Thyroid

3) Anterior pituitary 4) Hypothalamus

26. Which of the following is an accumulation and release centre of neurohormones?

1) Posterior pituitary lobe

2) Intermediate lobe of the pituitary

3) Hypothalamus

4) Anterior pituitary lobe

27. The pituitary gland is located in a bony cavity called …A… and is attached to …B… by a stalk. Identify A and B to complete the given statement

1) A-sella turcica; B-midbrain

2) A-sella turcica; B-forebrain

3) A-sella turcica; B-hypothalamus

4) A-sella turcica; B-pineal

28. ADH deficiency shows which of the following condition?

1) Polydipsia 2) Polyuria

3) Both (1) and (2) 4) Glucosuria

29. I. Sleep-wake cycle

II. Body temperature

III. Pigmentation

IV. Metabolism

V. Defence capability

All of the above written activities are influenced/regulated by

1) Pineal gland 2) Parathyroid gland

3) Thymus gland 4) Adrenal gland

30. Pineal gland of human brain secretes melatonin concerned with

1) Anger

2) Body temperature

3) Colouration of skin

4) Sleep

31. Melatonin is secreted by

1) Skin

2) Thymus

3) Pituitary

4) Pineal gland

32. The function of pineal body is to

1) Lighten the skin colours

2) Control sexual behavior

3) Regulate the period of puberty

4) All of the above

33. Pineal gland secretes

1) FSH

2) LH

3) Melatonin

4) GH

34. Which statement is correct about the thyroid gland?

1) Thyroid hormones are essential for the early development and maturation of the central nervous system

2) T_3 and T_4 stimulate the secretion of TSH by the anterior pituitary

3) People who have an over active thyroid gland have a low BMR

4) Low plasma levels of thyroid hormones leads to thyrotoxicosis

35. BMR is controlled by

1) Thyroxine 2)ADH

3) Aldosterone 4) Growth hormone

36. ACTH is secreted by

1) Thyroid gland 2) Thymus gland

3) Pituitary gland 4) Islets of Langerhans

37. 'Myasthenia gravis' is related to which hormone?

1) Thyroid hormone

2) Calcitonin hormone

3) Thymosine hormone

4)Vitamin-D

38. Goitre disorder is due to the deficiency of

1) Iron 2) Iodine 3) Protein 4) Retinol

39. Chemical disturbance in hormone secretion of thyroid gland causes

1) Goitre

2) Diabetes

3) Addisons's disease

4) Colour blindness

40. Disorder related with thyroid gland is

1) Diabetes mellitus

2) Hypercalcemia

3) Osteoporosis 4) Myxoedema

41. Select the incorrect option

1) Thyroid gland is the largest endocrine gland in humans

2) Thyroid secretes T_3 and T_4

3) Thyroid gland is composed of follicle and stromal tissues

4) Thyroid consists of four lobes

42. Consider the following statements

I. Calcitonin is non-iodised

II. Calcitonin is secreted by parafollicular cells

III. Calcitonin regulates the calcium level in blood

IV. Calcitonin is also called as TCT (Thyrocalcitonin)

V. TCT is hyperglycemic agent (factor)

Select the option containing correct statements from the above given statements

1) I, II and V 2) I, II, III and IV

3) III, IV and V 4) II, III, IV and V

43. I. Regulation of BMR

II. Supports the process of RBC formation

III. Controls the metabolism of carbohydrates, proteins and fat

IV. Maintenance of water and electrolyte balance

V. Secretion of TCT hormone

Function written above belong to which of the following gland

1) Thyroid gland 2) Parathyroid gland

3) Adrenal gland 4) Pituitary gland

44. Hypothyroidism causes

1) Myxoedema 2) Cretinism

3) Both (1) and (2) 4) Exophthalmic goitre

45. Which of the following diseases is not related to thyroid gland?

1) Myxodema 2) Acromegaly

3) Cretinism 4) Goitre

46. Which is not a symptom of exophthalmic goiter?

1) Degenerating sex organs
2) Protrusion of eyeball
3) Frightened look to the patient
4) None of the above

47. Calcium level decreases in the blood due to hyposecretion of

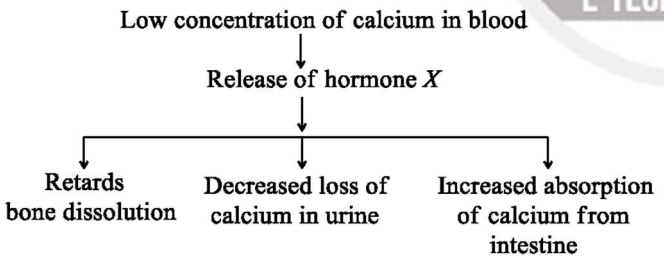
1) Parathyroid hormone
2) Calcitonin
3) Thyroxine
4) Adrenaline

48. The smallest endocrine gland is

1) Thyroid 2) Parathyroid
3) Pituitary 4) Adrenal

49. Parathormone is responsible for

1) Controlling calcium level in blood
2) Decreasing calcium level in blood
3) Filtration in nephron
4) Increasing absorption of water



50. Name the hormone X

1) PTH 2) Adrenal hormone
3) Both (1) and (2) 4) ACTH

51. A person is having problems with calcium and phosphorus metabolism in his body. Which one of the following glands may not be functioning properly?

1) Parathyroid
2) Parotid
3) Pancreas 4) Thyroid

52. Significant role in calcium balance in the body is performed by

I. PTH II. T_4 and T_3 III. TCT

The correct option is

1) I and II 2) II and III
3) I and III 4) I, II and III

53. Which of the following vitamins has some physiological effects similar to those of parathormone?

1) Vitamin- A 2) Vitamin- D
3) Vitamin- C 4) Vitamin- B

54. Thymus gland releases……hormone

1) T_4 2) T_3 3) Thymosins 4) TCT

55. Damage to thymus in a child may lead to

1) A reduction in haemoglobin content of
2) A reduction in stem cell production. blood.
3) Loss of antibody- mediated immunity.
4) Loss of cell- mediated immunity.

56. Which one of the following is the hormone of adrenal medulla?

1) Prolactin 2) ACTH
3) Corticosterone 4) Epinephrine

57. The adrenal medulla secretes two hormones called adrenaline or …A… and noradrenaline or …B… . These are commonly called as …C… . Adrenaline and noradrenaline are rapidly secreted in response to stress of any kind and during …D… situations and are called emergency hormones or hormones of fight or flight.

Identify A to D and choose the correct option

1) A-norepinephrine, B-epinephrine, C-catecholamines, D-emergency
2) A-epinephrine, B-norepinephrine, C-catecholamines, D-emergency

3) A-epinephrine, B-norepinephrine, C-emergency, D-catecholamines

4) A-norepinephrine, B-epinephrine, C-emergency, D-catecholamines

58. Study the following table and select the correct option.

Endocrine	Hormone	Deficiency Disorder
I. Neurohypophysis	Vasopressin	Diabetes insipidus
II. Adrenal cortex	Corticosteroids	Addison's disease
III. Parathyroid glands	Parathormone	Myxoedema
IV. Thyroid glands	Calcitonin	Acromegaly

1) II and III 2) I and II

3) III and IV 4) I and IV

59. Which is the function of norepinephrine?

1) Increase blood pressure

2) Urine formation

3) Increase secretion of adrenaline

4) None of the above

60. I. aldosterone II. norephinephrine

III. Sexcorticoids IV. Mineralocorticoids

V. Glucocorticoids

Among the given hormone those anti inflammatory effects are

1) I and II 2) Only III

3) IV and V 4) Only V

61. I. The adrenal cortex secretes many hormones called corticoids

II. Corticoids involved in carbohydrate metabolism are called glucocorticoids

III. Cortisol is main glucocorticoids

IV. Aldosterone is the main mineralocorticoids

Select the correct combination from the given options

1) I, II and III

2) II, III and IV

3) I, III and IV

4) I, II, III and IV

62. I. Increase of heart beat

II. Increase of respiration rate

III. Stimulate breakdown of glycogen

IV. Stimulate breakdown of lipid and protein

Statement written above are the features of which hormone

1) PTH 2) TCT

3) Thymosin 4) Catecholamine

63. Corticoids are the hormones, which are secreted by

1) Kidney 2) Adrenal cortex

3) Adrenal medulla 4) Hypothalamus

64. Small amount of …A… steroids are also secreted by …B…. Cortex which play a role in the growth of axial hair, pubic hair and facial hair during puberty.

Choose the correct combination for A and B

1) A-glucocorticoids; B-adrenal

2) A-androgenic; B-adrenal

3) A-mineralocorticoids; B-adrenal

4) A-cortisol; B-adrenal

65. Injury to adrenal cortex is not likely to affect the secretion of which one of the following?

1) Aldosterone

2) Both androstenedione and dehydroepiandrosterone

3) Adrenaline

4) Cortisol

66. A steroid hormone which regulates glucose metabolism is

1) Cortisol
2) Corticosterone
3) 11- deoxycorticosterone
4) Cortisone

67. Feeling the tremors of an earthquake, a scared resident of seventh floor of a multistoreyed building starts climbing down the stairs rapidly. Which hormone initiates this action?

1) Thyroxine 2) Adrenaline
3) Glucagon 4) Gastrin

68. Which of the following hormones have the direct effect on BP (Blood Pressure)?

I. Thymosin
II. PRL
III. MSH
IV. Adrenaline
V. Non-adrenaline

Select the option containing the correct pair

1) I and II 2) III and IV
3) IV and V 4) I and IV

69. Gluconeogenesis, lipolysis and proteolysis processes are stimulated by

1) Glucocorticoids 2) Mineralocorticoids
3) Both (1) and (2) 4) None of the above

70. The gland which performs both endocrine and exocrine function is

1) Adrenal 2) Thyroid
3) Pancreas 4) Pituitary

71. The macromineral essential for the formation of insulin is

1) Magnesium
2) Chlorine
3) Sulphur 4) Iodine

72. Prolonged hyperglycemia leads to

1) Diabetes insipidus
2) Diabetes mellitus
3) Increase in ketone bodies
4) Both (2) and (3)

73. Somatostatin

1) Stimulates glucagon release while inhibits insulin release
2) Stimulates release of insulin and glucagon
3) Inhibits release of insulin and glucagon
4) Inhibits glucagon release while stimulates insulin release

74. Which one affects liver, muscle and adipose tissue?

1) Androgen
2) Insulin
3) Progesterone
4) Glucagon

75. Diabetes mellitus takes place only when

1) α-cells of pancreas are in excess
2) β-cells of pancreas are in excess
3) α- cells of pancreas are in hypo
4) β- cells of pancreas are in hypo

76. Polydipsia means …A… Polyphagia means .B. Glycosuria means …C… Choose the correct option for A, B and C

1) A-Excessive thirst, B-Excessive eating, C-Glucose in urine
2) A-Excessive thirst, B-Urine in glucose, C-Excessive eating
3) A-Excessive eating, B-Urine in glucose, C-Excessive thirst
4) A-Excessive eating, B-Glucose in urine, C-Excessive thirst

77. Which of the following are the symptoms of hypersecretion of insulin?

I. Hypoglycemia II. Sweating

III. Irritability IV. Glycosuria

Option with correct combination is

1) I and II 2) II and III

3) I, III and IV 4) I, II and III

78. Choose the correct option for A to D

Types of cells (Langerhans)	Hormones
α - cells secrete	*A*
β - cells secrete	*B*
γ - cells secrete	*C*
δ - cells secrete	*D*

1) A-Glucagon, B-Insulin, C-Gastrin, D-Somatostatin

2) A-Insulin, B-Glucagon, C-Gastrin, D-Somatostatin

3) A-Insulin, B-Glucagon, C-Somatostatin, D-Gastrin

4) A-Glucagon, B-Insulin, C-Somatostatin, D-Gastrin

79. Spermatogenesis is under the regulatory influence of

1) ADH 2) FSH 3) LH 4) STH

80. Development of epididymis, vas deference, seminal vesicles, prostate glands and urethra is controlled by

1) Estrogen 2) Progesterone

3) Androgen 4) Pituitary hormone

81. In humans, testis functions as

1) Primary sex organ 2) Secondary sex organ

3) Endocrine gland 4) Both (1) and (3)

82. Estrogen

1) Stimulate the growth of ovarian follicle

2) Stimulate the appearance of secondary sex characters

3) Stimulate the growth of mammary gland

4) All of the above

83. Corpus luteum secretes

1) Progesterone and oestrogen

2) LH

3) Only progesterone

4) Progesterone and LH

84. 'ANF' is a hormone, which

1) Is secreted when BP is increased

2) Decreases BP

3) Cause vasodilation

4) All of the above

85. 'ANF' is

1) Steroidal in nature

2) Peptide hormone

3) Glucocorticoid hormone

4) Mineralocorticoid hormone

86. Which hormone acts on the exocrine part of pancreas and stimulates secretion of water and bicarbonate ions?

1) Gastric 2) Secretin 3) CCK 4) GIP

87. Which of the following is gastrointestine hormone?

1) Prolactin 2) Enterogastrone

3) GH 4) FSH

88. CCK acts on

1) Pancreas 2) Gall bladder

3) Both (1) and (2) 4) Liver

89. Cholecystokinin is secreted by

1) Large intestine 2) Small intestine

3) Liver 4) Spleen

90. Hormones produce their effect on target tissue by binding to specific proteins called as

1) Target proteins 2) Activator proteins

3) Inhibitor proteins 4) Hormone receptors

91. I. Insulin II. Epinephrine
III. Oestradiol IV. Norepinephrine
V. Testosterone VI. Glucagon
Which of the above hormones are amino acid derivatives?
1) I and II 2) III and IV
3) V and VI 4) II and IV

92. The hydrophilic hormones interact with …A… . While the hydrophobic hormones interact with…B… Choose the correct option for A and B
1) A-cell membrane receptors; B-nuclear receptors
2) A-nuclear receptors; B-cell membrane receptors
3) A-intracellular receptors; B-nuclear receptors
4) A-nuclear receptors; B-intracellular receptors

93. The 'amino acid derivative' among the following hormone is
1) Insulin 2) Epinephrine
3) Oestradiol 4) Testosterone

94. I. Non-nutrient
II. Intercellular messenger
III. Produced in trace amount
IV. Intracellular messenger
Select the correct properties of hormones from above list and then choose the option correct combination
1) I, II and III 2) II, III and IV
3) I, II and IV 4) I, III and IV

95. Each receptor is …A… to one hormone only and hence, receptors are …B…. Hormone receptor complex formation leads to certain biochemical changes in the …C…. Choose the option containing correct combination of A, B and C
1) A-specific, B-non-specific, C-target tissue
2) A-specific, B-specific, C-target tissue
3) A-non-specific, B-specific, C-target tissue
4) A-non-specific, B-non-specific, C-target tissue

96. Receptor hormone complex is formed when, the binding of
1) Hormone to its respective receptor takes
2) Enzyme to its respective receptor takes place place
3) Both (1) and (2)
4) Proteins to ER takes place

97. Hormones which interact with intracellular receptors are
I. Steroid hormones
II. ACTH
IIII. Iodothyronines
IV. MSH
Choose the option with correct combination
1) I and III 2) II and IV
3) II and III 4) I and IV

98. Steroid hormone is derived from
1) Corticoid 2) Cholesterol
3) AAD 4) Protein

99. Oestrogen and testosterone are steroid hormones, and are the most likely bind to
1) Membrane ions cannels
2) Enzyme-linked membrane receptors
3) G - protein linked membrane receptors
4) Cytoplasmic receptors

100. Which one of the following is not a second messenger in hormone action?
1) Calcium 2) Sodium
3) cAMP 4) cGMP

101. Which one of the following is not a second messenger in hormone action?

1) cGMP 2) Calcium

3) Sodium 4) cAMP

102. Which of them are the second messengers?

I. Cyclic AMP II. IP3 III. Ca^{2+}

The correct option is

1) I and II 2) II and III

3) I and III 4) I, II and IV

103. Hormone receptors are present

1) On the cell membrane

2) Outside the target cell

3) Inside the target cell

4) Both (1) and (3)

104. Steroid hormones typically alters the activity of target cells by

1) Activating primary messenger

2) Activating secondary messenger

3) Interacting with intracellular receptors

4) None of the above

105. I. ACTH II. GH

III. MSH IV. FSH

V. LH VI. Oxytocin

Which of the above hormones are polypeptide or proteinaceous in nature? Choose the correct option

1) I, II, III and IV 2) III, IV, V and VI

3) III, IV, V and VI 4) I, II, III and VI

106. Steroid hormones work as

1) They enter into target cells and binds with specific receptor and activates specific genes to form protein

2) They binds to cell membrane

3) They catalyze formation of cAMP

4) None of the above

LEVEL-1 KEY

1	2	3	4	5	6	7	8	9	10
2	3	2	4	2	2	1	2	4	1
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
4	2	2	2	2	2	1	2	2	4
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
3	3	1	2	3	3	3	2	1	4
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
4	4	3	1	1	3	3	2	1	4
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
4	2	1	3	2	1	1	3	1	1
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
1	3	2	3	4	4	2	2	1	4
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
4	4	2	2	3	1	2	3	1	3
71	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**
3	4	3	2	4	1	4	1	2	3
81	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**
4	4	1	4	2	2	2	3	2	4
91	**92**	**93**	**94**	**95**	**96**	**97**	**98**	**99**	**100**
4	1	2	1	2	1	1	2	4	2
101	**102**	**103**	**104**	**105**	**106**				
3	4	4	3	4	1				

LEVEL-2

1. Which of the following hormone provides general resistance to long term stress caused by inflammatory and allergic responses?

1) Adrenaline 2) Noradrenaline
3) Cortisol 4) Epinephrine

2. Hormones responsive for lactation is/are

1) PRL 2) Oxytocin
3) Pitocin 4) All of these

3. Which of the following hormone can work effectively If taken in the form of pills?

1) Insulin 2) Glucagon
3) Thyroxine 4) GH

4. Select the hormone that would increase the deposition of calcium in bones and is hypocalcemia

1) Calcitonin 2) Parathormone
3) Caldtriol 4) Both (2) & (3)

5. Osteoporosis is linked with

1) Hypersecretion of parathormone
2) Hypo secretion of estrogen in ageing female
3) Hyposecretion of thyroxine
4) Both (1) & (2)

6. If Herring bodies, in axon knob of neurosecretory cells of hypothalamus are blocked, which hormone will not be released into blood?

1) GH, TSH 2) ADH, Oxytocin
3) FSH, LH 4) MSH, ACTH

7. Which of the following is not a set of antagonist hormones?

1) Adrenaline – Noradrenaline
2) Insulin – Cortisol
3) Gastrin – Enterogastrone
4) Insulin – Glucagon

8 If you prevent a hormone from interacting with its receptors, then

1) The hormone will directly enter the cell
2) The hormone cannot perform its function
3) The action of hormone will increase
4) The hormone will bind with intracellular receptors in cytoplasm

9 Which symptoms cannot be seen in baby having enlarged thyroid gland due to deficiency of iodine in the diet?

1) Deaf and mutism
2) Stunted growth
3) High BMR
4) Low inteligent quotient

10. Select the incorrect statement.

1) Lipid soluble hormones regulate functions by altering gene expression
2) Water soluble hormones work by eliciting production of second messenger that activates various enzymes inside the cell
3) Hypothalamus is major integrating link between nervous and endocrine system
4) Negative feedback system does not maintain homeostasis in our body

11. Which of the following would serve as a second messenger for speeding up muscle cell contraction in response to adrenaline?

1) cGMP
2) cAMP
3) IP3
4) DG

12. Which one of the following pairs represents incorrect match of a hormone with a disease resulting from its deficiency?

	Hormones	Deficiency disorders
1)	Parathyroid hormone	- Tetany
2)	Insulin	- Diabetes insipidus
3)	Somatotropin	- Dwarfism
4)	Thyroxine	- Cretinism

13. Which of the following is common to both diabetes mellitus and diabetes insipidus?

1) Hyperglycemia 2) Diuresis

3) Glycosuria 4) Deficiency of insulin

14. The main target organs for tropic hormones are

1) Muscles 2) Kidneys

3) Endocrine glands 4) Bones

15. What is common to FSH, LH, TSH, PTH?

1) These are regulated by hypothalamic hormones

2) These are secreted by anterior pituitary

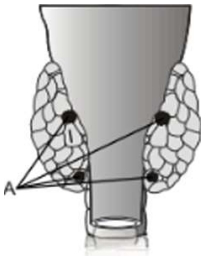
3) These all are glycoproteins

4) These hormones bind to extracellular receptors present on cell membrane of target cell

16. Which of the following is an Incorrect match about the source and hormone?

	Source	Hormone
1)	Sertoli eels of testis	- Androgen
2)	α-cells of islets of Langerhans	- Glucagon
3)	G-ceil of stomach	- Gastrin
4)	Corticotroph cells	- ACTH

17. Following is a diagrammatic view of the position of the gland marked as 'A'.



Choose the option which is correct identification of 'A', along with its function.

1) Thyroid gland secretes thyroxine which is calorigenic hormone

2) Parathyroid gland secretes PTH which regulates metamorphosis of frog

3) Parafollicular cell of thyroid gland, secretes TCT which decrease blood calcium level

4) Parathyroid gland secretes PTH, which increases blood calcium level

18. Individual with type II diabetes mellitus is characterised by all. Except

1) Lack of p-cell of islets of Langerhans

2) Can control their diabetes with diet and exercise

3) Produce enough insulin

4) Lack functional receptor for insulin on their cells.

19. Which hormone stimulates the production of RBC and prevents T eels form recognising interleukin signals?

1) Erythropoietin 2) Cortisol

3) Growth hormone 4) Thyroxine

20. Choose the mismatched pair w.r.t. action of adrenaline?

1) Blood pressure – Increase

2) Pupil – Constrict

3) Bronchial and trachea – Diation

4) Salivation – Decrease

21 A peptide hormone typically alters the activity of its target cells by

1) Binding to plasma membrane receptor

2) Entering the cell and altering gene expression

3) Passing its message through an intracellular messenger

4) Both (1) & (3)

22. Tumor of somatotroph cells of anterior pituitary can lead to which disease/disorder in adults?

1) Cushing's syndrome
2) Acromegaly
3) Dwarfism
4) Acromicria

23. Which of the following hormone does not require secondary messenger?

1) Prolactin 2) Epinephrine
3) lodothyronmes 4) Somatotropic hormones

24. Match the columns I and II and choose the correct one

	Column I	Column II
1)	Parathyroid	Ectodermal
2)	Adrenal gland	Supra renal gland
3)	Parafollicular cells	Colp's hormone
4)	Ovary	hCG hormone

25. How many of these hormones are related to blood sugar level?

GH, Thyroxine, Adrenaline, Glucagon, Cortisol, Insulin.

1) Six 2) Five 3) Four 4) Zero

26. Which of the following can be included under heterocrine glands?

1) Thyroid and parathyroid
2) Pineal gland
3) Gonads and pancreas
4) Thymus

27. Regulating hormones from hypothalamus reach adenohypophysis through

1) Neuron
2) Neuroendocrine cells
3) Portal blood vessel
4) Diffusion

28. The anterior pituitary hormone that does not stimulate another endocrine gland is

1) Somatotrophin 2) Thyrotrophin
3) Gonadotrophin 4) Adrenocorticotrophin

29. Luteinising hormone (LH) in female

1) Helps the appearance of secondary sexual characters
2) Stimulates ovary to secrete estradiol
3) Helps in release of the ovum from the ovary
4) Controls the blood pressure

30. On surgical removal of pituitary gland, there is fall in levels of glucocorticoids and sexcorticoids. This is due to

1) Oxytocin is no longer available from pituitary
2) Atrophy of adrenal medulla
3) Atrophy of adrenal cortex
4) LTH from pituitary is no longer available

31. Release of which hormone stored in pituitary is responsible for enhancing the arterial blood pressure by causing narrowing of arterioles?

1) ACTH 2) Somatotropin
3) ADH 4) LH

32 Largest endocrine gland is

1) Thyroid gland 2) Adrenal gland
3) Thymus 4) Pituitary gland

33. Failure of thyroid secretion from infancy leading to dwarfism and mental retardation is included under

1) Graves'disease 2) Cretinism
3) Simple goitre 4) Myxedema

34 Choose the non-iodinised hormone secreted by parafollicular cells of thyroid

1) Calcitonin
2) T_3
3) Vasopressin 4) Gonadotropin

35. Symptoms like pot-belly, pigeon like chest, protruding tongue and mental retardation indicate

1) Myxedema

2) Cretinism

3) Cushing's syndrome

4) Addison's disease

36. Hyposecretion of which hormone is responsible for goitre?

1) Thyroxine 2) Parathormone

3) Growth Hormone 4) Calcitonin

37. Increase in the excitability of nerves and muscles leading to sustained contraction of the muscles of larynx, face, hand and feet is due to

1) Hyperactivity of thyroid

2) Hyperactivity of parathyroid

3) Hypoactivity of thyroid

4) Hypoactivity of parathyroid

38. Hormone secreted during allergy to promote anti inflammatory state is

1) Glucocorticoid 2) Mineralocorticoid

3) Insulin 4) Thyroxine

39. Deficiency of the adrenal cortex activity leads to

1) Cushing s disease 2) Conn's syndrome

3) Addison's disease 4) Simmond's disease

40. Which one of the following set of symptoms pertain to Addison's disease?

1) Low plasma Na^+, high plasma K^+, increased urinary Na^+, low blood sugar, vomiting, nausea and diarrhea

2) High blood sugar, obesity, wasting of limb muscles, fall in plasma K^+. high blood Na^+. rise in blood volume and high blood pressure

3) Stunted growth, retarded sexual development mental backwardness

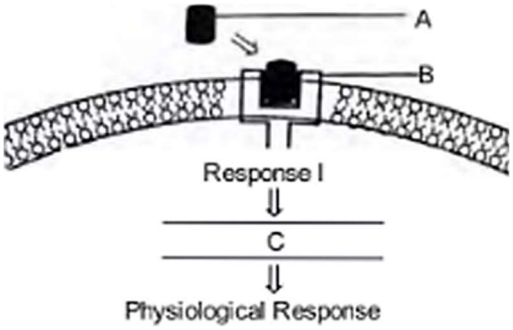
4) Increase of heart beat, rise in blood pressure, nervousness, bulging eyes, warm skin

LEVEL-2 KEY

1	2	3	4	5	6	7	8	9	10
3	4	3	1	4	2	1	2	3	4
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
2	2	2	3	4	1	4	1	2	2
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
4	2	3	2	1	3	3	1	3	3
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
3	1	2	1	2	1	4	1	3	1

LEVEL-3(PREVIOUS YEARQUESTIONS)

1. Identify A, B and C in the diagrammatic representation of the mechanism of hormone action.



Select the correct option from the following:

[NEET-2019 (Odisha)]

1) A = Protein Hormone: B = Cyclic AMP: C = Hormone-receptor Complex

2)A = Steroid Hormone: B = Hormone-receptor Complex: C = Protein

3) A = Protein Hormone: B = Receptor C = Cyclic AMP

4) A = Steroid Hormone: B = Receptor. C = Second Messenger

2. Artificial light, extended work-time and reduced sleep-time disrupt the activity of

1) Posterior pituitary gland

2) Thymus gland

3) Pineal gland

4) Adrenal gland **[NEET-2019 (Odisha)]**

3. Which of the following conditions will stimulate parathyroid gland to release parathyroid hormone? [NEET-2019 (Odisha)]

1) Rise in blood Ca^{+2} levels

2) Fall in active Vitamin D levels

3) Fall in blood Ca^{+2} levels

4) Fall in bone Ca^{+2} levels

4. How does steroid hormone influence the cellular activities? [NEET-2019]

1) Changing the permeability of the cell membrane

2) Binding to DMA and forming a gene-hormone complex

3) Activating cyclic AMP located on the cell membrane

4) Using aquaporin channels as second messenger

5. Match the following hormones with the respective disease

(a)	Insulin	(i)	Addison's disease
(b)	Thyroxin	(ii)	Diabetes insipidus
(c)	Corticoids	(iii)	Acromegaly
(d)	Growth Hormone	(iv)	Goitre
		(v)	Diabetes mellitus

Select the correct option [NEET-2019]

	(a)	(b)	(c)	(d)
1)	(v)	(i)	(ii)	(iii)
2)	(ii)	(iv)	(iii)	(i)
3)	(v)	(iv)	(i)	(iii)
4)	(ii)	(iv)	(i)	(iii)

6. Which of the following is an amino acid derived hormone? [NEET-2018]

1) Epinephrine 2) Ecdysone

3) Estriol 4) Estradiol

7. Which of the following hormones can play a significant role in osteoporosis? [NEET-2018]

1) Aldosterone and Prolactin

2) Progesterone and Aldosterone

3) Parathyroid hormone and Prolactin

4) Estrogen and Parathyroid hormone

8. Hypersecretion of Growth Hormone in adults does not cause further increase in height, because [NEET-2017]

1) Growth Hormone becomes inactive in adults
2) Epiphyseal plates close after adolescence
3) Bones lose their sensitivity to Growth Hormone in adults
4) Muscle fibres do not grow in size after birth

9. Which hormones do stimulate the production of pancreatic juice and bicarbonate? [NEET (Phase-2)-2016]

1) Angiotensin and epinephrine
2) Gastrin and insula
3) Cholecystokinin and secretin
4) Insulin and glucagon

10. Graves' disease is caused due to [NEET (Phase-2)-2016]

1) Hyposecretion of thyroid gland
2) Hypersecretion of thyroid gland
3) Hyposecretion of adrenal gland
4) Hypersecretion of adrenal gland

11. Name a peptide hormone which acts mainly on hepatocytes. adipocytes and enhances cellular glucose uptake and utilization.

1) Insulin **[NEET (Phase-2)-2016]**
2) Glucagon
3) Secretin 4) Gastrin

12. The posterior pituitary gland is not a true' endocrine gland because [NEET (Phase-2)-2016]

1) It is provided with a duct
2) It only stores and releases hormones
3) It is under the regulation of hypothalamus
4) It secretes enzymes

13. Which of the following pairs of hormones are not antagonistic (having opposite effects) to each other? [NEET-2016]

1) Relaxin – Inhibin
2) Parathormone – Calcitonin
3) Insulin – Glucagon
4) Aldosterone – Atrial Natriuretic Factor

14. The amino acid Tryptophan is the precursor for the synthesis of [NEET-2016]

1) Cortisol and Cortisone
2) Melatonin and Serotonin
3) Thyroxine and Triiodothyronine
4) Estrogen and Progesterone

15. Which one of the following hormones is not involved in sugar metabolism?

1) Glucagon **[Re-AIPMT-2015]**
2) Cortisone
3) Aldosterone
4) Insulin

16. Which one of the following hormones though synthesized elsewhere, is stored and released by the master gland? [Re-AIPMT-2015]

1) Melanocyte stimulating hormone
2) Antidiuretic hormone
3) Luteinizing hormone
4) Prolactin

17. A chemical signal that has both endocrine and neural rotes is [AIPMT-2015]

1) Cortisol
2) Melatonin
3) Calcitonin
4) Epinephrine

18. Fight-or-flight reactions cause activation of:

1) The parathyroid glands, leading to increased metabolic rate **[AIPMT-2014]**

2) The kidney, leading to suppression of renin-angiotensin-aldosterone pathway

3) The adrenal medulla, leading to increased secretion of epinephrine and norepinephrine

4) The pancreas leading to a reduction in the blood sugar levels

19. Identify the hormone with its correct matching of source and function: [AIPMT-2014]

1) Oxytocin - posterior pituitary, growth and maintenance of mammary glands

2) Melatonin - pineal gland, regulates the normal rhythm of sleepwake cycle

3) Progesterone-corpus-luteum. stimulation of growth and activities of female secondary sex organs

4) Atrial natriuretic factor - ventricular wall increases the blood pressure

20. Which of the following statement is correct in relation to the endocrine system? [NEET-2013]

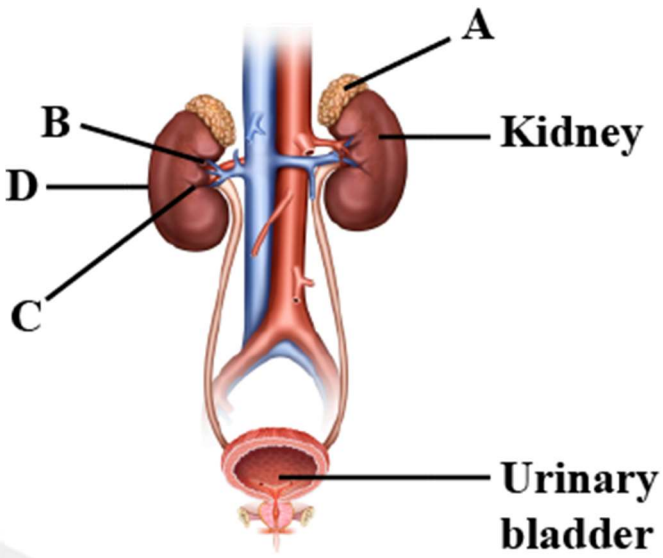
1) Organs in the body like gastrointestinal tract, heart, kidney and liver do not produce any hormones

2) Non-nutrient chemicals produced by the body in trace amount that act as intercellular messenger are known as hormones

3) Releasing and inhibitory hormones are produced by the pituitary gland

4) Adenohypophysis is under direct neural regulation of the hypothalamus

21. Figure shows human urinary system with structures labelled A to D. Select option which correctly identifies them and gives their characteristics and/ or functions.



1) B - Pelvis-broad funnel shaped space inner to hilum, directly connected to loops of Henle

2) C- Medulla - inner zone of kidney and contains complete nephrons

3) D - Cortex - outer part of kidney and do not contain any part of nephrons

4) A - Adrenal gland - located at the anterior part of kidney. Secrete Catecholamines which stimulate glycogen breakdown

22. A pregnant female delivers a baby who suffers from stunted growth, mental retardation, low intelligence quotient and abnormal skin. This is the result of [NEET-2013]

1) Low secretion of growth hormone

2) Cancer of the thyroid gland

3) Over secretion of pars distal is

4) Deficiency of iodine in diet

23. Select the answer which correctly matches the endocrine gland with the hormone it secretes and its function/deficiency symptom:

[NEET-2013]

	Endocrine gland	Hormone	Function/ deficiency/ Symptoms
1)	Posterior pituitary	Growth Hormone (GH)	Over secretion stimulates abnormal growth
2)	Thyroid gland	Thyroxine	Lack of iodine in diet results in goitre
3)	Corpus luteum	Testosterone	Stimulates spermatogenesis
4)	Antenor pituitary	Oxytocin	Stimulates uterus contraction during child birth

24. Which one of the following pairs of hormones are the examples of those that can easily pass through the cell membrane of the target cell and bind to a receptor inside it (mostly in the nucleus) [AIPMT (Prelims)-2012]

1) Somatostatin, oxytocin
2) Cortisol, testosterone
3) Insulin, glucagon
4) Thyroxin, Insulin

25. Which one of the following pairs of chemical substances, is correctly categorized?

[AIPMT (Mains)-2012]

1) Secretin and rhodopsin-Polypeptide hormones
2) Calcitonin and thymosin - Thyroid hormones
3) Pepsin and prolactin - Two digestive enzymes secreted in stomach
4) Troponin and myosin - Complex proteins in striated muscles

26. Match the source gland with its respective hormone as well as the function. [AIPMT (Prelims)-2011]

	Source gland	Hormone	Function
1)	Thyroid	Thyroxine	Regulates blood calcium level
2)	Anterior pituitary	Oxytocin	Contraction of uterus muscles during child birth
3)	Posterior pituitary	Vasopressin	Stimulates resorption of water in the distal tubules in the nephron
4)	Corpus luteum	Estrogen	Supports pregnancy

27. Given below is an incomplete table about certain hormones, their source glands and one major effect of each on the body in humans. Identify the correct option for the three blanks A, B and C.

Gland	Secretion	Effect on Body
A	Oestrogen	Maintenance of sexual characters
Alpha eels of Islets of Langerhans	B	Raises Hood sugar level
Anterior pituitary	C	Over secretion leads to gigantism

	A	B	C
1)	Placenta	Glucagon	Calcitonin
2)	Ovary	Glucagon	Growth hormone
3)	Placenta	Insulin	Vasopressin
4)	Ovary	Insulin	Calcitonin

28. The 24 hour (diurnal) rhythm of our body such as the sleep-wake cycle is regulated by the hormone. [AIPMT (Mains)-2011]

1) Adrenaline 2) Melatonin
3) Calcitonin 4) Prolactin

29. Injury to adrenal cortex is not likely to affect the secretion of which one of the following?

1) Cortisol **[AIPMT (Prelims)-2010]**
2) Aldosterone
3) Both androstenedione and dehydroepiandro sterone
4) Adrenaline

30. Which one of the following pairs is incorrectly matched? [AIPMT (Prelims)-2010]

1) Insulin-Diabetes mellitus (disease)
2) Glucagon - Beta cells (source)
3) Somatostatin - Delta cells (source)
4) Corpus luteum - Relax in (secretion)

31. Toxic agents present in food which interfere with thyroxine synthesis lead to the development of [AIPMT (Prelims)-2010]

1) Thyrotoxicosis 2) Toxic goitre
3) Cretinism 4) Simple goitre

32. Select the correct matching of a hormone, its source and function [AIPMT (Mains)-2010]

	Hormone	Source	Function
1)	Vasopressin	Posterior pituitary	Increases loss of water through urine
2)	Norepinephrine	Adrenal mod Jla	Increases heart beat rate of respiration and alertness
3)	Glucagon	Beta-cells of Islets or langerhans	Stimulates glycogenolysis
4)	Prolactin	Posterior Pituitary	Regulates growth of mammary glands and milk formation in females

33. The letter T in T-lymphocyte refers to

1) Thalamus **[AIPMT (Prelim s)-2009]**
2) Tonsil
3) Thymus
4) Thyroid

34. A health disorder that results from the deficiency of thyroxine in adults and characterized by (i) a low metabolic rate. (ii) increase in body weight and (iii) tendency to retain water in tissues is: [AIPMT (Prelims)-2009]

1) Simple goitre
2) Myxoedema
3) Cretinism
4) Hypothyroidism

35. Which one of the following is an amine hormone? [AIPMT (Prelim s)-2008]

1) Progesterone
2) Thyroxine
3) Oxypurin
4) Insulin

36. The blood calcium level is lowered by the deficiency of [AIPMT (Prelims)-2008]

1) Calcitonin
2) Parathormone
3) Thyroxine
4) Both Calcitonin and Parathormone

37. Which of the following pairs of organs includes only the endocrine glands?[AIPMT (Prelims)-2008]

1) Adrenal and Ovary
2) Parathyroid and Adrenal
3) Pancreas and Parathyroid
4) Thymus and Testes

38. Compared to a bull a bullock is docile because of [AIPMT (Prelims)-2007]

1) Lower levels of adrenalin/noradrenalin in its blood
2) Higher levels of thyroxin
3) Higher levels of cortisone
4) Lower levels of blood testosterone

39. Felling the tremors of an earthquake a scared resident of seventh floor of a multistoryed building starts climbing down the stairs rapidly. Which hormone initiated this action?

1) Gastrin **[AIPMT (Prelims)-2007]**
2) Thyroxin
3) Ad renal ne
4) Glucagon

40. A person is having problems with calcium and phosphorous metabolism in his body. Which one of the following glands may not be functioning properly? [AIPMT (Prelims)-2007]

1) Thyroid
2) Parathyroid
3) Parotid
4) Pancreas

41. A steroid hormone which regulates glucose metabolism is : [AIPMT (Prelims)-2006]

1) Cortisol
2) Corticosterone
3) 11-deoxycorticosterone
4) Cortisone

42. Which one of the following is not a second messenger in hormone action?

1) cGMP **[AIPMT (Prelims)-2006]**
2) Calcium
3) Sodium
4) cAMP

43. Which of the following is an accumulation and release centre of neurohormones? [AIPMT (Prelims)-2006]

1) Posterior pituitary lobe
2) Intermediate lobe of the pituitary
3) Hypothalamus
4) Anterior pituitary lobe

44 Which hormone causes dilation of blood vessels, increased oxygen consumption and glycogenolysis? [AIPMT (Prelims)-2006]

1) ACTH 2) Insulin
3) Adrenalin 4) Glucagon

45. Damage to thymus in a child may lead to [AIPMT (Prclims)-2005]

1) A reduction in haemoglobin content of blood
2) A reduction in stem cell production
3) Loss of antibody mediated immunity
4) Loss of cell mediated immunity

46. Thymosin hormone is secreted by

1) Thyroid gland 2) Parathyroid gland
3) Thymus gland 4) Hypothalamus

47. Insufficient quantities of antidiuretic hormone in blood lead to

1) Diabetes mellitus
2) Glycosuria
3) Diabetes insipidus 4) Uremia

48. The hormone which regulates the basal metabolism in our body is secreted from

1) Adrenal cortex 2) Pancreas
3) Pituitary 4) Thyroid

49. Calcitonin is a thyroid hormone which

1) Elevates calcium level in blood
2) Has no effect on calcium
3) Elevates potassium level in blood
4) Lowers calcium level in blood

50. Which hormone stimulates the formation and secretion of milk in female?

1) Oxytocin 2) Progesterone
3) LH 4) Prolactin

51. Secretion of progesterone by corpus luteum is initiated by

1) Testosterone 2) Thyroxine
3) MSH 4) LH

52. The function of oxytocin is to help in

1) Childbirth 2) Gametogenesis
3) Growth 4) Lactation

53. Melatonin is secreted by

1) Pineal body 2) Skin
3) Pituitary gland 4) Thyroid

54. The gonadotropic hormones are secreted by

1) Anterior lobe of pituitary
2) Interstitial eels of testes
3) Adrenal cortex
4) Posterior part of thyroid

55. Which one of the following endocrine gland stores its secretion in the extracellular space before discharging it into the blood?

1) Testis 2) Thyroid
3) Pancreas 4) Adrenal

56. Acromegaly is caused by

1) Excess of S.T.H.
2) Excess of thyroxin
3) Deficiency of thyroxin
4) Excess of adrenalin

57. Which of the following pair is correct match of a hormone with a disease resulting from its deficiency?

1) Relaxin - Gigantism
2) Prolactin - Cretinism
3) Parathyroid hormone - Tetany
4) Insulin - Diabetes Insipidus

58. Which of the following hormones is modified amino acid?

1) Epinephrine 2) Progesterone
3) Prostaglandin 4) Estrogen

59. Adrenaline directly affects on

1) SA. Node
2) p-cells of Langerhans
3) Dorsal root of spinal nerve
4) Epithelial cells of stomach

60. Diabetes is due to :

1) Enzyme deficiency
2) Iodine deficiency
3) Na^+ deficiency
4) Hormonal deficiency

LEVEL-3 KEY

1	2	3	4	5	6	7	8	9	10
3	3	3	2	3	1	4	2	3	2
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
1	2	1	2	3	2	4	3	2	2
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
4	4	2	2	4	3	2	2	4	2
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
4	2	3	2	2	2	2	4	3	2
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
1	3	3	3	4	3	3	4	4	4
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
4	1	1	1	2	1	3	1	1	4

STRUCTURAL ORGANISATION IN ANIMALS

LEVEL-1

1. Which of the following does not match?

a) Muscular movement-ATP

b) Heart-pace – maker

c) Monocyte - Haemoglobin

d) Nerve – acetylcholine

2. Which one of the following contains the largest quantity of extracellular material?

a) Stratified epithelium

b) Myelinated nerve fibres

c) Striated muscle

d) Areolar tissue

3. Each organ of human body is made up of one or more type of

a) Tissue b) Cells c) Parts d) Layers

4. Lymphoid tissue is found in

a) Thymus b) Tonsils

c) Lymph nodes d) All of these

5. In a tissue the structure of cells varies according to their

a) Origin b) Function

c) Gene content d) None of these

6. Which of the following tissue forms the epidermis of the skin in land vertebrates?

a) None-keratinised stratified squamous epithelium

b) Keratinised stratified squamous epithelium

c) Stratified ciliated columnar epithelium

d) Stratified cuboidal epithelium

7. Study the following statements

I. It forms the lining of the cavities of alveoli of the lungs

II. It occurs in the ducts of sweat glands

III. It forms the lining of salivary glands and glands

IV. It is a loose connective tissue

Which of the above statements are associated with the simple epithelial tissue

a) I and III b) II and III

c) III and IV d) IV and I

8. Pseudostratified epithelium is found in

a) Pharynx b) Trachea

c) Testis d) Epidermis

9. The type of tissue lining present on the ducts of salivary gland and pancreas is

a) Columnar epithelium

b) Cuboidal epithelium

c) Compound epithelium

d) Glandular epithelium

10. The epithelial tissue present on the inner surface of bronchioles and fallopian tubes is

a) Cuboidal b) Glandular

c) Ciliated d) Squamous

11. Which of the following statements are incorrect regarding ciliated epithelium?

I. Cells possess cilia on their free surface

II. They bear microvilli at the free ends to increase surface area of the organ

III. Mucous spreads over the epithelium as a thin layer

IV. It is found in the lining of the small intestine

a) I and III b) I and II
c) II and IV d) III and IV

12. Goblet cells of alimentary canal are a type of
a) Intercellular gland b) Multicellular gland
c) Unicellular gland d) None of these

13. The type of tissue lining the nasal passage, bronchioles and fallopian tubes is
a) Columnar ciliated epithelium
b) Cuboidal epithelium
c) Neurosensory epithelium
d) Germinal epithelium

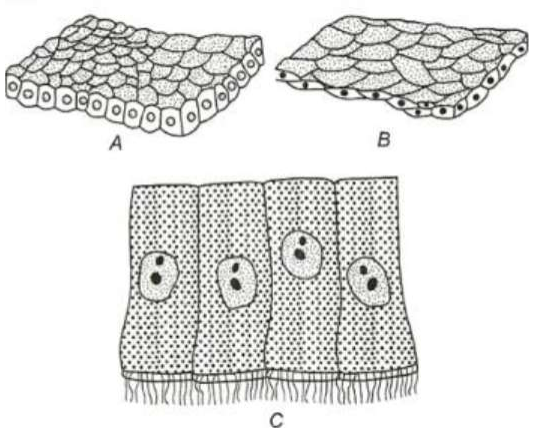
14. The ciliated columnar epithelial cells in humans are known to occur in
a) Bronchioles and fallopian tubes
b) Bile duct and oesophagus
c) Fallopian tubes and urethra
d) Eustachian tube and stomach lining

15. Which of the following tissues provides a covering layer for some of the body parts?
a) Connective tissues
b) Muscular tissues
c) Epithelial tissues d) Neural tissues

16. Ductless glands in human beings produces
a) Saliva
b) Bile
c) Hormones d) Mucous

17. Which of the following statement is incorrect about squamous epithelium?
a) It consists of a single thin layer of flattened cells with irregular boundries
b) It is present on secretory and absorptive surfaces
c) It is found on the walls of the kidney
d) It is involved in many functions like forming a diffusion boundary

18. Identify A, B and C following figures of simple epithelium tissue



a) A-Ciliated columnar, B-Squamous, C-Cuboidal
b) A-Cuboidal, B-Squamous, C-Ciliated columnar
c) A-Squamous, B-Ciliated columnar, C-Cuboidal
d) A-Ciliated columnar, B-Cuboidal, C-Squamous

19. Categorisation of secretory gland can be done on the basis of
a) Mode of pouring of their secretion
b) Mode of breaking down of molecules
c) Mode of segregation of products
d) None of the above

20. The type of cell junction, which facilitates cell to cell communication is
a) Tight junction b) Adhering junction
c) Gap junction d) Desmosomes

21. Collagen fibres are secreted by
a) Mast cells b) Macrophage
c) Histiocytes d) fibroblasts

22. Blood platelets are found only in the blood of
a) Birds b) Reptiles
c) Mammals d) Amphibians

23. Which of the following cells is/are contained in areolar connective tissue?

a) Mast cells b) Fibrobalsts

c) Macrophages d) All of these

24. Which of the following is not correctly matched?

a) Cartilage - Limbs and hands in adults

b) Blood - Fluid connective tissue

c) Tendons - Connects bone to bone

d) Adipose tissue - Blubber of whales

25. Histamine and heparin are secreted by

a) Monocytes b) Neutrophils

c) Eosinophils d)Basophils

26. With the help of the following identify the correct sequence, that leads to the formation of blood clot

I. Blood clot II. Injury

III. Factor II IV. Factor III

V. Factor IV VI. Fibrinogen

VIII. Thorambin

a) II → III → IV → VI → VII →I

b) II → III → VII → VI → I $\xrightarrow{FI}$ IV↑ e^+ $\xleftarrow{+e}$

c) IV → II → III → VII → VI → I↑ e^+

d) II → IV → III → VI → VII → I↑ e^+

27. Collagen is a

a) Phosphoprotein b) Globulin

c) Derived protein d) Scleroprotein

28. Bone marrow is made up of

a) Muscular fibre and fatty tissue

b) Fatty tissue and areolar tissue

c) Fatty tissue and cartilage

d) Fatty tissue, areolar tissue and blood vessel

29. Most radiosensitive tissue of body is

a) Bone marrow b) Platelet

c) Nervous tissue d) Lymphocyte

30. Which of the following connective tissue does not contain collagen?

a) Cartilage b) Bone

c) Blood d) Adipose

31. Adipose tissue is a type of

a) Loose connective tissue

b) Dense connective tissue

c) Specialised connective tissue

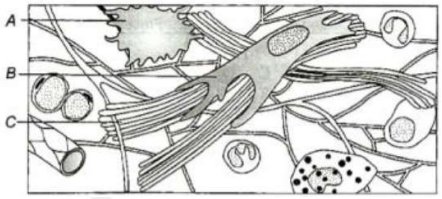
d) None of the above

32. Which type of connective tissue produces antibodies?

a) Mast cells b) Collagenous fibres

c) Plasma cells d) None of these

33. Identify A to C in the given diagram of areolar tissue



a) A-Macrophage, B-Fibroblast, C-Collagen fibres

b) A-Mast cells, B-Collagen fibres, C-Plasma membrane

c) A-Chondrocyte, B-Fat storage area, C-Plasma membrane

d) A-fibroblast, B-Macrophages, C-Mast cells

34. Blood is a kind of

a) Areolar tissue

b) Connective tissue

c) Fluid connective tissue

d) Reticular connective tissue

35. Tendons helps in connecting

a) Muscles to bones b) Bone to bone

c) Bone of cartilage d) Cartilage to muscle

36. Bone marrow of long bones are the sites of

a) Production of WBCs

b) Production of RBCs

c) Production of blood

d) Breakdown of RBCs

37. Consider the following statements

I. Cells are compactly packed in the epithelial tissues with little intercellular matrix

II. The cells secretes fibres of structural protein in all the connective tissues expect blood

III. Neuroglea is made up of more than one half the volume of neural tissue in our body

IV. Muscles are made up of fibres Which of the above given is/are true?

a) Only I b) I and III

c) I and II d) I, II, III and IV

38. Fibroblasts, macrophages and mast cells are seen in

a) Epithelial tissue

b) Connective tissue

c) Skeletal muscle tissue

d) Smooth muscle tissue

39. The muscles surrounding the pupil of rabbit's eye are

a) Unstriated and involuntary

b) Striated and voluntary

c) Unstriated and voluntary

d) Striated and involuntary

40. Which one of the following is the correct pairing of a body part and the kind of muscle tissue that moves it?

a) Heart wall- Involuntary unstriated muscle

b) Biceps of upper arm - Smooth muscle fibres

c) Abdominal wall - Smooth muscle

d) Iris -Involuntary smooth muscle

41. Which type of tissue is present in human heart?

a) Epithelial tissue

b) Muscular tissue and neural tissue

c) Connective tissue

d) All of the above

42. Myelinated nerve fibres are white coloured because of

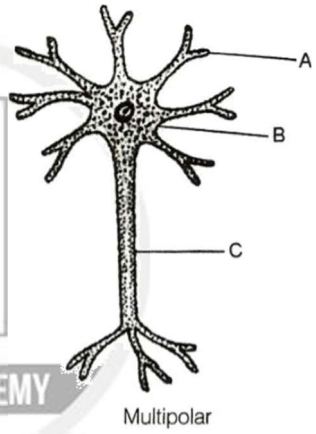
a) Chromidial substance

b) Neurolemma

c) Myelin

d) None of these

43. Identify A to C in the given diagram of multipolar neuron



Multipolar

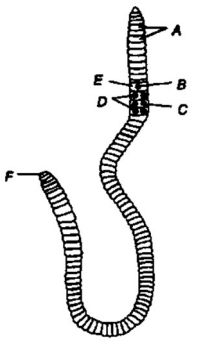
a) A-Dendrites, B-Cyton,C-Axon

b) A-Axon, B-Cyton, C-Dendrites

c) A-Cyton, B-Axon, C-Dendrite

d) A-Axon, B-Dendrites, C-Cyton

44. Given below the diagram of the ventral view of earthworm's body. Identify A to F and choose the correct combination of options



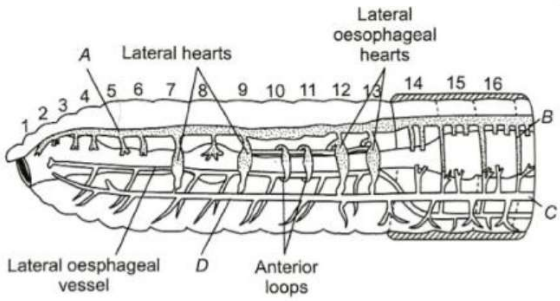
a) A-Setae, B-Female genital aperture, C-Male genital aperture, D-Genital papillae, E-Clitellum, F-Anus

b) A- Anus, B- Setae, C-Male genital aperture, D- Female genital aperture, E-Genital papillae, F- Clitellum

c) A-Setae, B- Male genital aperture, C- Female genital aperture, D-Genital papillae, E-Clitellum, F-Anus

d) A-Nephridiopores, B- Setae, C-Nuclei, D-Metamers, E-Prostomium, F-Anus

45. Observe the given figure of closed circulatory system of earthworm and identify A, B, C and D



a) A-Ventral vessel, B-Subneural vessel, C-Commissural vessel, D-Dorsal vessel

b) A-Subneural vessel, B-Ventral vessel, C-Dorsal vessel, D-Commissural vessel

c) A-Dorsal vessel, B-Commissural vessel, C-Subneural vessel, D-Ventral vessel

d) A-Commissural vessel, B-Dorsal vessel, C-Ventral vessel, D-Subneural vessel

46. In which part of the earthworm sense organs are most concentrated?

a) Posterior part b) Anterior part

c) Middle part d) None of these

47. Blood vascular system of Pheretima consists of

a) Vessels, capillaries and heart

b) Nerve, veins and heart

c) Lymphs, heart and blood

d) Visceral organ, lymph and blood

48. Which of the following animal is unisexual?

a) Tapeworm b) Sponge

c) Leech d) Earthworm

49. In earthworm, nephridium collects the excess of fluid from the

a) Septal chamber b) Nephridial chamber

c) Coelomic chamber d) Gizzard chamber

50. The principal role of setae in earthworm is

a) Respiration b) Excretion

c) Locomotion d) Assimilation

51. Blood glands are present on which segments of the earthworm?

a) 4th, 5th and 6th b) 3rd, 4th and 5th

c) 2nd, 3rd and 4th d) 5th, 6th and 7th

52. Which of the following is the function of spermathecae in the earthworm

a) They receives eggs during copulation

b) They receives and store spermatozoa during copulation

c) It helps in the formation of sperms

d) It receives spermatogonia for maturation

53. The clitellum divides the body of earthworm into……regions

a) 3 b)2 c) 4 d)5

54. The ova of the earthworms are fertilised by the sperm within the

a) Cocoon b) Seminal vesicles

c) Soil d) None of the above

55. From earthworm, two pairs of testes are present in the segments

a) 10th-11th b)11th-12th

c) 12th-13th d)13th-14th

56. In earthworm, a pair of male gential pores are present on the ventro-lateral side of the segment

a) 20th b) 19th c) 18th d) 17th

57. In earthworm, a single female genital pore is present in the mid-ventral line of the segment number

a) 14th b) 16th c) 15th d) 17th

58. Which of the following statements are incorrect in reference to the blood vascular system of the earthworm?

I. Blood vascular system is of open type

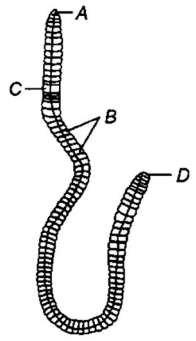
II. Smaller blood vessels supply the gut, nerve cord and the body wall

III. Blood glands are present on 6th 7th and 8th segment

IV. Blood cells are phagocytotic in nature

a) Only I b) I and IV c) I and III d) II and III

59. Identify A, B, C and D in the given figure of dorsal view of earthworm's body and choose the correct combination of option given below



a) A-setae, B-Clitellum, C-Genital papillae, D-Anus

b) A-Peristomium, B-Cilium, C-Male genital aperture, D-Base

c) A-Prostomium, B-Metameres, C-Clitelium, D-Anus

d) A-Annuli, B-Grooves, C-Metameres, D-Anus

60. Gizzard in earthworm help in

a) Emulsifying fat

b) Releasing digestive juice

c) Crushing or grinding food

d) Excretion of waste material

61. Numerous minute pores opens on the surface of the body of earthworm are called

a) Setae

b) Nephridiopores

c) Spermatospore d) None of the above

62. In earthworm a nerve cord is

a) Single, spongy and posterior

b) Paired, solid and ventral

c) Paired, hollow and dorsal

d) Single, solid and ventral

63. In earthworm, copulatory papillae are present on segment

a) 17th to 19th

b) 19th to 21st

c) 21st to 23rd d)23rd to 25th

64. In female cockroach, the 7th sternum together with the 8th and 9th sterna forms a

a) Collateral gland b) Gono pore

c) Genital pouch d) Analcercus

65. Which of the following segments constitute the thorax of the cockroach?

a) Prothorax and prethorax

b) Prothorax and mesothorax

c) Mesothroax and metathorax

d) Prothorax, mesothorax and metathorax

66. In female cockroach, shape of the 7th sternum is

a) Oval

b) Circular

c) Boat shaped d) Spiral

67. The body of the cockroach is segmented and divisible into

a) Head and tail

b) Head and thorax

c) Head and abdomen

d) Head, thorax and abdomen

68. The female reproductive system of the cockroach consists of

a) Two large ovaries

b) Three large ovaries

c) One large ovaries d) Four large ovaries

69. In the mouth parts of cockroach, the glea and laciniagorms the part of

a) Mandible b) Maxilla

c) Labium d) Labsum

70. In male cockroach, genital pouch contains

a) Dorsal anus, ventral genital pore and gonapophysis

b) Dorsal anus, gonopore and gonapophysis

c) Ventral anus, dorsal spermathecal pore, gonapophysis

d) Gonopore, spermathecal, pores and collateral glands

71. In the female reproductive system of cockroach ovaries are located in which of the following abdominal segments?

a) 2nd-6th b) 4th- 8th

c) 6th-2th d) 1st-2nd

72. The development of PerjpZanata amerjcana is

a) Holometabolous b) Paurometabolous

c) Ametabolous d) Hemimetabolous

73. Which of the following is known as fossorial animal?

a) Frog b) Earth worm

c) Cockroach d) Rabbit

74. Exchange of gases takes place in cockroaches by the process of

a) Diffusion b) Osmosis

c) Expiration d) None of these

75. Choose the incorrect pair from the matches given below

a) Antennae - Sensory receptors

b) Metathoracic wings - Flying

c) Malpighian tubule – Excretory role

d) Crop - Grinding food

76. The mouth part of a cockroach are said to be

a) Absorbing type

b) Biting and absorbing type

c) Biting and chewing type

d) Biting and sucking type

77. Consider the following statements about the hind wings of cockroach

I. These are broad and thin

II. They are not used in flying

III. They are also known as mesothoracic wings

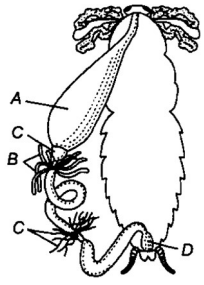
IV. They are transparent and delicate

Which of the statements given above is/are incorrect?

a) Only I b) II and I

c) I and IV d) I, II, III and IV

78. Study the given figure of alimentary canal of cockroach. Identify the parts that helps in the removal of excretory products from the haemolymph



a) A b) B c) C d) D

79. Which of the following part of cockroach's alimentary canal secretes digestive juices?
a) Malphigian tubule b) Proven triculus
c) Caecae d) Crop

80. The largest tergal part in cockroach is
a) Mesonotum b) Metanotum
c) Pronotum d) Plurae

81. Cockroaches can climb smooth or steep surfaces due to the presence of adhesive pads found on the tarsus of their legs
a) Pretarsus b)Arolium
c) Plantulae d) Tibia

82. Which of the following are the wax secreting cells in cockroach?
a) Trichogen cells b) Tormogen cells
c) Oenocytes cells d) Glandular cells

83. Cockroach are
a) Omnivorous b) Carnivorous
c) Herbivorous d) Parasitie

84. Metamorphosis occur in a life history of
a) Frog b) Earthworm
c) Man d) Rat

85. Which of the following part of the alimentary canal of cockroaches is used for storing food?
a) Crop b) Gastric caecae
c) Gizzard d) Oesophagus

86. In the digestive system of cockroach gastric caecae is present at the junction of
a) Mid gut and hind gut
b) Hind gut and fore gut
c) Fore gut and mouth
d) Mid gut and fore gut

87. In addition to the Malpighian tubules, excretion of the waste products in cockroach occurs by
a) Fat bodies b) Nephrocytes
c) Urecose glands d) All of these

88. The nymphs of cockroaches grows by moulting about…..times to reach the adult form
a) 6 b) 8 c) 10 d) 13

89. Cockroaches are placed in the phylum-Arthropooda because
a) Chewing mouth parts
b) Presence of wings
c) Chitinous exoskeleton
d) Joined appendages

90. In cockroach, larval and nymphal characters are maintained by
a) Ecdysone b) Salivary glands
c) Parotid glands d) Juvenile hormone

91. In both the sexes of cockroaches, the 10th segment bears a pair of joined filamentous structure called
a) Anal style b) Anal cerci
c) Gonapo physis d) Spermathecal pores

92. Select the correct order of classification of Rana tigrina up to genus
a) Chordata, Craniata, Amphibia, Gnathostomata, Rana
b) Chordata, Craniata, Gnathostomata, Amphibia, Rana
c) Chordata, Amphibia, Gnathostomata, Craniata, tigrina
D) Chordata, Craniata, Amphibia, Gnathostomata, tigrina

93. Which of the following sense organ in frogs is not the cellular aggregation around the nerve ending?
a) Eyes b) Sensory papillae
c) Taste bud d)Nasal epithelium

94. The blood vascular system of the frog consists of

a) Heart, blood vessels and blood with haemoglobin

b) Blood vessels, capillaries and heart of neuroganic type

c) Haemolymph, blood vessels and heart

d) Artries, veins, capillaries heart and blood

95. Urinary bladder is…..in frogs

a) Mutilobed b) Absent

c) Unilobed d) Bilobd

96. Heart of frog is

a) Venous heart b) Simple circuit

c) Double circuit d) Mixed circuit

97 In male frog, ureters act as

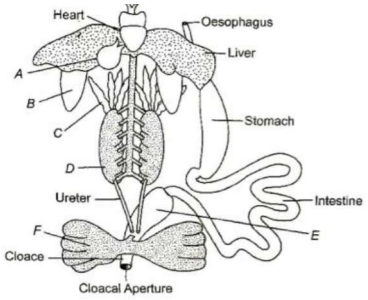
a) Urinogenital ducts

b) Cloaca

c) Urinary bladder

d) Lymphatic system

98. Given below the diagram of internal organs of frog and identify A to F



a) A-Gall bladder, B-Lungs, C-Testis, D-Kidney, E-Urethra, F-Urinary bladder

b) A-Gall bladder, B-Lungs, C-Fat bodies, D-Kidney, E-Rectum, F-Urinary bladder

c) A-Gall bladder, B-Lungs, C-Ovary, D-Kidney, E-lleum, F-Urinary bladder

d) A-Gall bladder, B-Lungs, C-Fat bodies, D-Kidney, E-Colon, F-Urinary bladder

99. Which of the following is not a characteristic feature of frog?

a) Browspot b) Hallux

c) Amplexusory padsd) None of the above

100. In frog the main function of the bile juices is

a) Emulsification of fat

b) Digestion of carbohydrate

c) Digestion of protiens

d) Metabolism of lipids

101. In frog, a solid muscular organ situated in the upper part of the body cavity is

a) Heart b) Intestine

c) Lungs d) Kidney

102. Forelimbs and hindlimbs of a frog helps in

a) Swimming b) Walking

c) Leaping d) All of these

103. The skin of frog is slippery and smooth due to the presence of

a) Mucous b) Gelatin

c) Waxy skin d) Mucilage

104. The number of vasa efferentia that arises from testes in frog's male reproductive system is

a) 9 - 12 b) 10 - 12 c) 13 - 16 d) 16 – 19

105. In frog, cloaca is an opening of

a) Excretory ducts b) Reproductive ducts

c) Both (a) and (b) d) None of these

106. Which of the following functions is/are performed by the of frog's skin?

a) Excretion of waste material

b) Absorption of minerals

c) Diffusion of respiratory gases

d) All of the above

107. Which of the following statement is correct in reference with the frog?

I. Eyes are bulged and covered by nictitating membrane

II. Membranous tympanum receives the sound signals

III. The frog never drinks water

IV. A pair of nostrils is preset above the mouth

a) I and II b) III and IV

c) I and IV d) I, II, III and IV

108. Consider the following statements related to Sana tigrina and select the correct option stating which are true and which are false

I. Hindlimbs are larger and muscular than forelimbs

II. The alimentary canal of frog is short

III. They respire on the land through skin only

IV. They contains two-chambered heart

	I	II	III	IV
a)	T	F	T	F
b)	F	F	T	T
c)	F	T	T	F
d)	T	T	F	F

109. Excretory system of the frog consists of

a)Pair of kidneys, ureters, urinary bladder, cloaca

b) Single kidney, urinary bladder and cloaca

c) Kidney, and cloaca only

d) Urethra and cloaca only

110. Frog has different types of sense organs

I. Sensory papillae

II. Nasal epithelium

III. Taste buds

IV. Eyes

V. Tympanum with internal ears

Which of these are well organised structures?

a) I and III b) III and IV

c) IV and V d) I, II, III and IV

LEVEL-1 KEY

1	2	3	4	5	6	7	8	9	10
3	4	1	4	2	2	1	2	3	3
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
3	3	1	1	3	3	3	2	1	3
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
4	3	4	3	4	2	4	4	1	4
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
1	3	1	3	1	3	4	2	1	4
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
4	3	1	1	3	2	1	4	3	1
51	**52**	**53**	**54**	**55**	**56**	**57**	**58**	**59**	**60**
1	2	1	1	1	3	1	3	3	3
61	**62**	**63**	**64**	**65**	**66**	**67**	**68**	**69**	**70**
2	2	1	3	4	3	4	1	2	1
71	**72**	**73**	**74**	**75**	**76**	**77**	**78**	**79**	**80**
1	2	2	1	4	3	2	3	3	3
81	**82**	**83**	**84**	**85**	**86**	**87**	**88**	**89**	**90**
2	3	1	1	1	4	4	4	4	4
91	**92**	**93**	**94**	**95**	**96**	**97**	**98**	**99**	**100**
2	2	1	4	1	4	1	2	4	1
101	**102**	**103**	**104**	**105**	**106**	**107**	**108**	**109**	**110**
1	**4**	**1**	**2**	**3**	**3**	**4**	**4**	**1**	**3**

LEVEL-2

1. **Select the correct statement about epithelial tissue**

   1) Simple squamous epithelial lining of blood vessels is called mesothelium

   2) Mesothelium is derived from embryonic mesoderm

   3) Simple cuboidal epithelium is specialized for protection

   4) Pseudostratified epithelium consists of two distinct layers of cells as well as nuclei

2. **Which of the following statements is correct w.r.t. neuroglial cells?**

   1) They are excitable cells which conduct the impulses generated in response to a suitable stimulus

   2) They are always ectodermal in origin

   3) They make up less than half of the neural tissue of the body

   4) They form the blood brain barrier and support the neurons

3. **The type of muscular tissue which forms the wall of hollow visceral organs like stomach and urinary bladder is**

   1) Striated muscles

   2) Single unit smooth muscles

   3) Multi unit smooth muscles

   4) Striated involuntary muscles

4. **Select the Incorrect match**

   1) Nissl's granules – Cyton

   2) Gap junctions – Communicating junctions

   3) Absence of collagen – Ligament

   4) Goblet cells - Unicellular exocrine Glands

5. **Which of the following is not considered a connective tissue?**

   1) Muscle 2) Blood

   3) Adipose tissue 4) Cartilage

6. **Multiple lipid globules and presence of larger quantity of mitochondria and oxygen for more energy production are characteristics of**

   1) Fibroblasts of areolar tissue

   2) Adipocytes of yellow adipose tissue

   3) Adipocytes of brown adipose tissue

   4) Loose reticular tissue of spleen

7. **The epithelium which protects against mechanical and chemical stresses is present in all. Except**

   1) Buccal cavity

   2) Tubular parts of nephron

   3) Vagina

   4) Larger ducts of pancreas

8. **The parts of neurons where neurilemma is present but myelin sheath is absent are called**

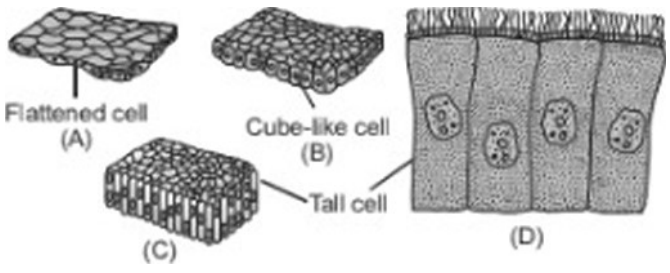
   1) Nodes of Ranvier

   2) Dendrites

   3) Axon hillock

   4) Telodendria

9. **Consider the following diagram indicating different types of simple epithelia**



   Select the correct option regarding the epithelia marked (A), (B). (C) and (D) w.r.t their correct location and one exception

	Epithelium	Locations	Exception
1)	A	Alveoli, blood capillaries. mesothelium Bowman's capsule	Bowman's capsule
2)	B	Tubular parts of nephrons, thyroid follicles, germinal epithelium	Germinal epithelium
3)	C	Lining of stomach and intestine, gastric and intestinal glands	Intestinal glands
4)	D	Bronchioles, fallopian tubes, urethra, ependyma	Urethra

10. Type of neurons with a single process arising from cyton which divides later to form an axon and a long dendron are found in

1) Sensory dorsal roots of spinal cord in ganglion
2) Motor ventral roots of spinal cord
3) Olfactory epithelium and cochlea
4) Grey matter of brain

11. Which of the following tissues is avascular?

(a) Skeletal muscles
(b) Dense reticular tissue
(c) Cartilage
(d) Epithelium
(e) Tendons

1) (c), (d) & (e) 2) (b), (c) & (d)
3) (c) & (d) only 4) (a), (c) & (d)

12. Which of the following is a correct example of the location of cartilage without perichondrium?

1) Auricle and tip of the nose
2) Coastal cartilage and metaphysis plate
3) Pubic symphysis and intervertebral disc
4) Eustachian tube and epiglottis

13. Which of the following is an exclusive feature of mammalian bones?

1) Hydroxyapetite salts impregnated between criss-crossing collagen fibres
2) Osteocytes and osteoblasts
3) Haversian canals and Volksman's canals
4) Lamellae

14. Isotropic band in a striated muscle fibre

1) Is a part of two consecutive sarcomeres, joined at 'z'-line.
2) Is non-uniformly dark
3) Makes the structure of sarcomere along with two halves of anisotropic bands
4) Both (1) & (3)

15. Which is false about Nodes of Ranvier?

1) They facilitate saltatory conduction
2) They possess neurilemma but are without myelin sheath
3) They are without neurilemma but with myelin sheath
4) Have abundant Na^+ in ECF

16. How many out of the following feature(s) is/are common between skeletal and cardiac muscle fibres?

(a) Presence of T-tubules
(b) Number of nuclei per fibre
(c) Intercalated discs
(d) Presence of striations
(e) Cylindrical shape of fibres
(f) Only aerobic contractions

1) One 2) Two 3) Three 4) Four

17. In a T.S. of nerve following structures are present

I. Myelin sheath II. Axolemma
III. Epineurium IV. Endoneurium

V Perineurium VI. Fasciculus

Mark the correct sequence (outer to inner side)

1) III, V, VI, IV, I, II

2) III, V, VI, IV, II, I

3) I, II. III, IV, V, VI

4) VI, III, V, IV, II, I

18. Major part of matrix in connective tissue is secreted by

1) Fibroblast 2) Mast cells

3) Histiocyte 4) Clasmatocytes

19. Nerve fibres differ from muscle fibres in having

1) Myofibrils 2) Striations

3) Sarcolemma 4) Dendrites

20. Which type of neuroglial cells are involved in the formation of myelin sheath in CNS?

1) Neurolemmocytes 2) Schwann cells

3) Oligodendrocytes 4) Astrocytes

21. Total number of spiracles present in the thoracic region of cockroach is

1) 2 2) 4 3) 8 4) 16

22. In the mouth parts of cockroach. A and B parts help in grinding the food and acting like the tongue respectively The correct options for A and B respectively are

1) Maxila. Labium

2) Mandible. Labium

3) Maxila. Hypopharynx

4) Mandible, Hypopharynx

23. In the circulatory system of cockroach, the filling of blood in relaxing heart chambers occurs when

1) Alary muscles contract, squeezing the pericardial sinus

2) Alary muscles relax, pulling the dorsal diaphragm up in normal arched position

3) Alary muscles contract, pushing down the dorsal diaphragm

4) Alary muscles relax, forcing the head sinus to send the blood from head towards tail through heart chambers

24. Which of the following statements is incorrect w.r.t paurometabolous development of Periplaneta?

1) The intermediate developemental stages are called nymphs

2) Nymphs moult about 13 times to reach the adult stage

3) Nymphs resemble the adults in all respects i.e.. both structure and function

4) Nymphs come out of ootheca which were formed in brood pouch of female cockroach

25. Select the correct match w.r.t. cockroach

1) Spermathecae	- Production and storage of sperms
2) Conglobate gland	- Outermost covering of spermatophore
3) Utriculi majores	- Middle covering of spermatophore
4) Seminal vesicle	- Innermost covering of spermatophore

26. The cells of cockroach which produce and release urates in its blood are

1) Mycetocytes 2) Oenocytes

3) Corpora adiposa 4) Urate cells

27. How many of the following statement(s) is/are Incorrect w.r.t Periplaneta?

(a) Embryonically, the body is made of 20 segments which reduces to 14 in adults

(b) Body part with unchanged number of segments throughout life cycle is thorax

(c) Anal styles are 15 segmented appendages of male cockroaches

(d) Anal cerci are unsegmented appendages of both male and female cockroaches

1) One 2) Two 3) Three 4) Four

28. The longest and shortest podomeres in the leg of the cockroach are __and_respectively

1) Femur. Tibia 2) Tibia. Coxa

3) Tarsus. Trochanter 4) Tibia. Trochanter

29. Juvenile hormone which retains the nymphal characteristics of cockroach and slows down the appearance of adult characteristics is secreted by its _____ glands.

1) Corpora allata 2) Prothoracic

3) Corpora cardiaca 4) Neural

30. Titillator and pseudopenis w.r.t cockroach are

1) Ovipositors of female, present in brood pouch

2) Parts of left phallomere of males

3) Parts of ventral phallomere of males

4) Parts of anal cerci

31. Which of the following is correct w.r.t. gastric caecae of cockroach?

1) 6-8 blind tubules at the junction of crop and gizzard which eliminate wastes from haemolymph

2) 100-150 thin yellow tubules at the junction of foregut and midgut to eliminate wastes from haemolymph.

3) 6-8 blind tubules at the junction of gizzard and midgut to secrete digestive enzymes.

4) 6-8 blind tubules at junction of midgut and ileum to secrete digestive enzymes.

32. Select the correct option w.r.t. the description of parts labelled A. B. C and D in the given diagram

1) A - Each consists of 14-16 ovarioles having a series of developing ova

2) B - A pair of spermathecae is present in the 6th segment which opens into the genital chamber

3) C - Secretes the outermost covering over the spermatophores

4) D - Secretes the oothecal membrane around the fertilized ova

33. All the following structures help in excretion. Except

1) Uricose glands 2) Nephrocytes

3) Malpighian tubules 4) Mycetocytes

34. Which of the following is correct w.r.t. the respiration in cockroach?

1) Expiration is passive as it occurs due to relaxation of muscles.

2) Inspiration is active as it occurs due to contraction of muscles

3) Tergo-sternal muscles contract and relax harmoniously to cause expiration and inspiration respectively

4) Tracheolar fluid is withdrawn inside the tracheoles when oxygen requirement increases during activity.

35. Which of the following is not a part of receptive zone of ommatidium in cockroach?

1) Rhabdome

2) Iris pigment sheath

3) Retinular pigment sheath

4) Retinular cells

36. Blatta orientalis differs from Periplaneta americana in

(a) Colour

(b) Size

(c) Length of wings

(d) Number of moultings in life

1) (a), (b) & (c) only 2) (a), (c) & (d) only

3) (b), (c) & (d) only 4) (a), (b), (c) & (d)

37. Which of the following is an incorrect match w.r.t structure and its location in male and female cockroach?

1) Spermathecae – 8th abdominal segments

2) Mushroom gland - 6th - 7th abdominal segments

3) Testes - 4th – 6th abdominal segments

4) Ovaries - 2nd - 6th abdominal segments

38. Spermatophore of male cockroach has three layered wall. The inner, middle and outer layer is respectively secreted by

1) Phallic gland, ejaculatory duct, utriculi majores

2) Utriculi majores. ejaculatory duct, phallic gland

3) Ejaculatory duct, utriculi majores. phallic gland

4) Phallic gland, utriculi majores, ejaculatory duct

39. Find out the incorrect statements w.r.t. head of cockroach

1) Tentorium is the endoskeletal structure of the head

2) Head is triangular and present at an angle of 90° from the long axis of the body

3) Head is formed by the fusion of six embryonic segments

4) Chewing and lapping type of mouth parts are found in head

40. A pair of anal styles in male cockroach are

1) Jointed structures arising from 10th terga

2) Unjointed structures arising from 9th sterna

3) Jointed structures arising from 9th sterna

4) Unjointed structures arising from 10th terga

41. Which of the following statements is not correct about earthworm?

1) It shows metamerism, and the number of segments vanes from 100-120

2) The first segment at the anterior end of the body is called as the buccal segment" or Peristomium

3) The first segment is Prostomium

4) The skin of earthworm is brown due to the presence of porphyrin

42. The earthworms move with the help of

1) Setae, muscles and hydrostatic skeleton

2) Setae alone

3) Muscles alone 4) Parapodia

43. In earthworm there is a ring of S-shaped setae, embedded in the epidermal pit at the middle of each segment, except

1) First

2) Last

3) Clitellar

4) First, last and clitellar segments

44. There are four pairs of spermathecal pores in Pheretima which are located in intersegmental grooves between segments

1) 5/6, 6/7, 7/8, 8/9

2) 6/7, 7/8, 8/9, 9/10

3) 14/15, 15/16, 16/17, 17/18

4) 1/2, 2/3, 3/4. 4/5

45. Select the wrong match w.r.to earthworm

1) Female genital aperture	- Midventral line of 14th segment
2) A pair of male genital apertures	- Ventrolateral sides of 18th segment
3) Genital papillae	- Ventral surface of 17th & 19th segments
4) Clitellum or Cingulum	- 9th to 14th segment

46. Which of the following cells of earthworm are analogous to vertebrate liver cells?

1) Chromophil cells
2) Chloragogen cells
3) Calciferous gland cells
4) Albumen cells

47. In earthworm the function of typhlosole which extends between 27th to 95th segments is

1) Excretion
2) To enhance effective area of absorption after digestion
3) Respiration
4) Locomotion

48. Which of the following statements is incorrect about the circulatory system of earthworm?

1) Pheretima represents a dosed type of blood vascular system
2) Blood glands are present in 4th. 5th and 6th segments, they produce blood cells and haemoglobin dissolved in plasma
3) There are fours pairs of hearts in earthworm present in 7. 9. 12 and 13 segments
4) In dorsal vessel blood flows in forward direction and is without valves

49. Testes in earthworm are present in the segments

1) 11 & 12 2) 12 & 13
3) 14 & 15 4) 10 & 11

50. During copulation in earthworms, sperms are transferred between copulating individuals from

1) Female genital pore to spermathecae
2) Male genital pores to spermathecae
3) Spermathecae to cocoon
4) Male genital pores to outside

LEVEL-2 KEY

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
2	4	2	3	1	3	2	1	4	1
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
3	3	3	1	3	3	1	4	4	3
21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
2	4	2	3	2	4	2	4	1	2
31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
3	2	4	3	2	4	1	2	4	2
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
3	1	4	1	4	2	2	4	4	2

LEVEL-3(PREVIOUS YEARQUESTIONS)

1. Match the following cell structure with its characteristic feature :

a)	Tight junctions	(i) Cement neighboring cells together to form sheet
b)	Adhering junctions	(ii) Transmit information through chemical to another cells
c)	Gap junctions	(ii) Establish a barrier to prevent leakage of fluid across epithelial cells
d)	Synaptic junctions	(iv) Cytoplasmic channels to facilitate communication between adjacent cells

Select correct option from the following:

[NEET-2019 (Odisha)]

1) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)
2) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)
3) (a)-(iv), (b)-(ii), (c)-(i), (d)-(iii)
4) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)

2. The ciliated epithelial cells are required to move particles or mucus in a specific direction. In humans, these cells are mainly present in

1) Bile duct and Bronchioles **[NEET-2019]**
2) Fallopian tubes and Pancreatic duct
3) Eustachian tube and Salivary duct
4) Bronchioles and Fallopian tubes

3. Nissl bodies are mainly composed of

1) Proteins and lipids**[NEET-2018]**
2) DNA and RNA
3) Free ribosomes and RER
4) Nucleic acids and SER

4. Smooth muscles are [NEET-Phase-2-2016]

1) Involuntary, fusiform, non-striated
2) Voluntary, multinucleate, cylindrical
3) Involuntary, cylindrical, striated
4) Voluntary, spindle-shaped, uninucleate

5. Which type of tissue correctly matches with its location?

	Tissue	**Location**
1)	Cuboidal epithelium	Lining of stomach
2)	Smooth muscle	Wall of intestine
3)	Areolar tissue	Tendons
4)	Transitional epithelium	Tip of nose

6. The function of the gap junction is to

[Re-AIPMT-2015]

1) Stop substance from leaking across a tissue.
2) Performing cementing to keep neighbouring cells together.
3) Facilitate communication between adjoining cells by connecting the cytoplasm for rapid transfer of ions, small molecules and some large molecules
4) Separate two cells from each other.

7. Choose the correctly matched pair:

[AIPMT-2014]

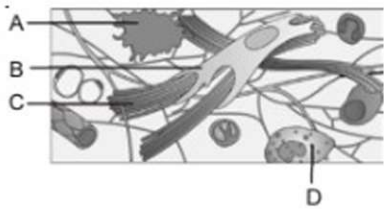
1) Tendon-Specialized connective tissue
2) Adipose tissue-Dense connective tissue
3) Areolar tissue-Loose connective tissue
4) Cartilage-Loose connective tissue

8. Choose the correctly matched pair:

[AIPMT-2014]

1)	Inner lining of salivary ducts	Ciliated epithelium
2)	Moist surface of - buccal cavity	Glandular epithelium
3)	Tubular parts of – nephrons	Cuboidal epithelium
4)	Inner surface of - bronchioles	Squamous epithelium

9. Given below is the diagrammatic sketch of a certain type of connective tissue. Identify the parts labelled A, B. C and D, and select the right option about them.

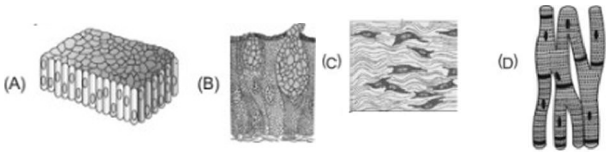


	Part-A	Part-B	Part-C	Part-D
1)	Macro-phage	Fibroblast	Collagen fibres	Mast cells
2)	Mast cell	Macrophage	Fibroblast	Collagen fibres
3)	Macro-phage	Collagen fibres	Fibroblast	Mast cell
4)	Mast cell	Collagen fibres	Fibroblast	Macrophage

10. The supportive skeletal structures in the human external ears and in the nose tip are examples of [AIPMT (Mains)-2012]

1) Cartilage 2) Ligament
3) Areolar tissue 4) Bone

11. The four sketches (A, B. C and D) given below, represent four different types of animal tissues. Which one of these is correctly identified in the options given, along with its correct location and function? [AIPMT (Mains)-2012]



		Tissue	Location	Function
1)	(B)	Glandular epithelium	Intestine	Secretion
2)	(C)	Collagen fibres	Cartilage	Attach skeletal muscles to bones
3)	(D)	Smooth muscle tissue	Heart	Heart contraction
4)	(A)	Columnar epithelium	Nephron	Secretion and absorption

12. The ciliated columnar epithelial cells in humans are known to occur in [AIPMT (Prelims)-2011]

1) Fallopian tubes and urethra
2) Eustachian tube and stomach lining
3) Bronchioles and fallopian tubes
4) Bile duct and oesophagus

13. The cells lining the blood vessels belong to the category of [AIPMT (Mains)-2011]

1) Columnar epithelium
2) Connective tissue
3) Smooth muscle tissue
4) Squamous epithelium

14. The kind of epithelium which forms the inner walls of blood vessels is

1)Squamous epithelium**[AIPMT (Prelims)-2010]**
2) Cuboidal epithelium
3) Columnar epithelium
4) Ciliated columnar epithelium

15. The epithelial tissue present on the inner surface of bronchioles and fallopian tubes is [AIPMT (Prelims)-2009]

1) Glandular 2) Ciliated
3) Squamous 4) Cuboidal

16. The cell junctions called tight, adhering and gap junctions are found in:

1) Connective tissue **[AIPMT (Prelims)-2009]**
2) Epithelial tissue
3) Neural tissue
4) Muscular tissue

17. The kind of tissue that forms the supportive structure in our pinna (external ears) is also found in: [AIPMT (Prelims)-2009]

1) Nails 2) Ear ossicles

3) Tip of the nose 4) Vertebrae

18. Mast cells secrete [AIPMT (Prelims)-2006]

1) Hippurin 2) Myoglobin

3) Histamine 4) Haemoglobin

19. Epithelial cells of the intestine involved in food absorption have on their surface

1) Pinocytic vesicles **[AIPMT (Prelims)-2005]**

2) Phagocytic vesicles

3) Zymogen granules

4) Micro-villi

20. Four healthy people in their twenties got involved in injuries resulting in damage and death of a few cells of the following. Which of the cells are least likely to be replaced by new cells? [AIPMT (Prelims)-2005]

1) Osteocytes

2) Malpighian layer of the skin

3) Liver cells

4) Neurons

21. Which of the following statements is incorrect? [NEET-2019 (Odisha)]

(1) Female cockroach possesses sixteen ovarioles in the ovaries

(2) Cockroaches exhibit mosaic vision with less sensitivity and more resolution.

(3) A mushroom-shaped gland is present in the 6^{th} -7^{th} abdominal segments of male cockroach.

(4) A pair of spermatheca is present in the segment of female cockroach

22. Select the correct sequence of organs in the alimentary canal of cockroach starting from mouth [NEET-2019]

(1) Pharynx → Oesophagus → Crop → Gizzard → Ileum → Colon → Rectum

(2) Pharynx → Oesophagus → Gizzard → Crop →Ileum Colon Rectum

(3) Pharynx → Oesophagus → Gizzard→ Ileum → Crop Colon → Rectum

(4) Pharynx → Oesophagus → Ileum → Crop → Gizzard → Colon → Rectum

23. Which of the following features is used to identify a male cockroach from a female cockroach? [NEET-2018]

(1) Presence of a boat shaped sternum on the abdominal segment

(2) Presence of caudal styles

(3) Presence of anal cerci

(4) Forewings with darker tegmina

24. Select the correct route for the passage of sperms in male frogs [NEET-2017]

(1) Testes → Bidder's canal → Kidney → Vasa efferentia → Urinogenital duct Cloaca

(2) Testes → Vasa efferentia→ Kidney→Seminal Vesicle → Urinogenital duct → Cloaca

(3) Testes → Vasa efferentia→Bidder's canal → Ureter → Cloaca

(4) Testes → Vasa efferentia → Kidney→Bidder's canal→Urinogenital duct→Cloaca

25. Frog's heart when taken out of the body continues to beat for sometime Select the best option from the following statements

(a) Frog is a poikilotherm.

(b) Frog does not have any coronary circulation.

(c) Heart is "myogenic" in nature

(d) Heart is autoexcitable.

Options **[NEET-2017]**

(1) Only (c) (2) Only (d)

(3) (a) & (b) (4) (c) & (d)

26. In male cockroaches, sperms are stored in which part of the reproductive system? [NEET-Phase-2-2016]

(1) Seminal vesicles (2) Mushroom glands

(3) Testes (4) Vas deferens

27. Which of the following features is not present in Periplaneta americana? [NEET-2016]

(1) Metamerically segmented body

(2) Schizocoelom as body cavity

(3) Indeterminate and radial cleavage during embryonic development

(4) Exoskeleton composed of N-acetytglucosamine

28. The body cells in cockroach discharge their nitrogenous waste in the haemolymph mainly in the form of [Re-AIPMT-2015]

(1) Calcium carbonate (2) Ammonia

(3) Potassium urate (4) Urea

29. The terga. sterna and pleura of cockroach body are joined by [AIPMT-2015]

(1) Cartilage (2) Cementing glue

(3) Muscular tissue (4) Arthrodial membrane

30. What external changes are visible after the last moult of a cockroach nymph? [NEET-2013]

(1) Anal cerci develop

(2) Both fore wings and hind wings develop

(3) Labium develops

(4) Mandibles become harder

31. Select the correct statement from the ones given below with respect to Periplaneta americana [AIPMT (Prelims)-2012]

(1) Grinding of food is carried out only by the mouth parts

(2) Nervous system located dorsally. consists of segmentally arranged ganglia joined by a pair of longitudinal connectives

(3) Males bear a pair of short thread like anal styles

(4) There are 16 very long Malpighian tubules present at the junctions of midgut and hindgut

32. Pheretima and its close relatives derive nourishment from [AIPMT (Prelims)-2012]

(1) Small pieces of fresh fallen leaves of maize, etc

(2) Sugarcane roots

(3) Decaying fallen leaves and soil organic matter

(4) Soil insects

33. Compared to those of humans, the erythrocytes in frog are [AIPMT (Prelims)-2012]

(1) Nucleated and without haemoglobin

(2) Without nucleus but with haemoglobin

(3) Nucleated and with haemoglobin

(4) Very much smaller and fewer

34. Which one of the following characteristics is common both m humans and adult frogs? [AIPMT (Mains)-2012]

(1) Ureotelic mode of excretion

(2) Four - chambered heart

(3) Internal fertilisation

(4) Nucleated RBCs

35. Which of the following is correctly stated as it happens in the common cockroach? [AIPMT (Prelims)-2011]

(1) The food is ground by mandibles and gizzard

(2) Malpighian tubules are excretory organs projecting out from the colon.

(3) Oxygen is transported by haemoglobin in blood

(4) Nitrogenous excretory product is urea.

36. One very special feature in the earthworm Pheretima is that : [AIPMT (Prelims)-2011]

(1) It has a long dorsal tubular heart

(2) Fertilisation of eggs occurs inside the body

(3) The typhlosole greatly increases the effective absorption area of the digested food in the intestine

(4) The S-shaped setae embedded in the integument are the defensive weapons used against the enemies

37. Frogs differ from humans in possessing [AIPMT (Mains)-2011]

(1) Nucleated red blood cells

(2) Thyroid as well as parathyroid

(3) Paired cerebral hemispheres

(4) Hepatic portal system

38. Consider the following four statements (A-D) related to the common from Rana tigrina. and select the correct option stating which ones are true (T) and which ones are false (F). Statements:

(A) On dry land it would die due to lack of O_2, if its mouth is forcibly kept closed for a few days.

(B) It has four chambered heart.

(C) On dry land it turns uricotelic from ureotelic.

(D) Its life history is carried out in pond water.

[AIPMT (Mains)-2011]

1) A-F, B-F, C-T, D-T 2) A-F, B-T, C-T, D-F

3) A-T, B-F, C-F, D-T 4) A-T, B-T, C-F, D-F

39. Which one of the following structures in Pheretima is correctly matched with its function? [AIPMT (Mains)-2011]

(1) Setae - Defence against predators

(2) Typhlosole - Storage of extra nutrients

(3) Clitellum - Secretes cocoon

(4) Gizzard - Absorbs digested food

40. Uric acid is the chief nitrogenous component of the excretory products of [AIPMT (Prelims)-2009]

(1) Earthworm (2) Cockroach

(3) Frog (4) Man

41. Which one of the following correctly desenbes the location of some body parts in the earthworm Pheretima?[AIPMT (Prelims)-2009]

(1) Four pairs of spermathecae in 4 - 7 segments

(2) One pair of ovaries attached at intersegmental septum of 14^{th} and 15^{th} segments

(3) Two pairs of testes in 10^{th} and 11^{th} segments

(4) Two pairs of accessory glands in 16^{th} ,-18,th segments

42. Earthworms have no skeleton but during burrowing, the anterior end becomes turgid and acts as a hydraulic skeleton. It is due to [AIPMT (Prelims)-2008]

(1) Setae (2) Coelomic fluid

(3) Blood (4) Gut penstalsis

43. Earthworms are [AIPMT (Prelims)-2006]

(1) Ureotelic when plenty of water is available

(2) Uricotelic when plenty of water is available

(3) Uricotelic under conditions of water scarcity

(4) Ammonotelic when plenty of water is available

44. Which one of the following has an open circulatory system? [AIPMT (Prelims)-2006]

(1) Pheretima (2) Periplaneta

(3) Hirudinaria (4) Octopus

45. Primary function of enteronephric nephridia of Pheretima is

(1) Osmoregulation

(2) Excretion of nitrogenous wastes

(3) Respiration

(4) Locomotion

46. Select the correct option w.r.t cockroaches

(1) The fore wings are tegmina which are used in flight

(2) Malpighian tubules convert nitrogenous wastes into urea

(3) Males bear short anal styles not present in females

(4) Nervous system comprises of a dorsal nerve cord and ten pairs of ganglion

47. Which one of the following is one of the paths followed by air/O_2 during respiration in an adult male Periplaneta americana as it enters the animal body?

(1) Hypopharynx. mouth, pharynx, trachea, tissues

(2) Spiracle in metathorax. trachea, tracheoles. oxygen diffuses into cells

(3) Mouth, bronchial tube, trachea, oxygen enters cells

(4) Spiracles in prothorax, tracheoles, trachea, oxygen diffuses into cells

48. Ureters act as urinogenital ducts in

(1) Frog's both males and females

(2) Frog's males

(3) Human males

(4) Human females

49. The breakdown of detritus into smaller particles by earthworm is a process called

(1) Mineralisation (2) Catabolism

(3) Humification (4) Fragmentation

50. Which of the following organs in earthworm neutralizes humic acid present in humus?

(1) Typhosole

(2) Calciferous glands

(3) Intestinal caecum

(4) Gizzard

LEVEL-3 KEY

1	2	3	4	5	6	7	8	9	10
4	4	3	1	2	3	3	3	1	1
11	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
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21	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**
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31	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**
3	3	3	1	1	3	1	3	3	2
41	**42**	**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**
3	2	4	2	2	3	2	2	4	2

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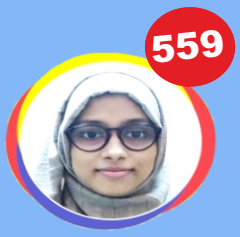
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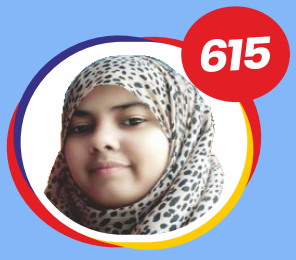
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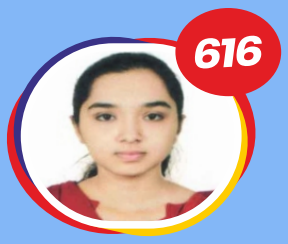
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Add:- White House,Batatawala Building,Buddha Colony, Kurla West, Mumbai 400070.
MOB:. 9833905914 / 8928877808