CHAPTER 17: BREATHING AND EXCHANGE OF GASES

ONE MARK QUESTIONS:

1. Define breathing. (k)
2. Name the organ of respiration in Earthworm. (k)
3. Name the organ of respiration in insects. (k)
4. Name the organ of respiration in aquatic arthropods. (k)
5. Name the organ of respiration in molluscs. (k)
6. Name the organ of respiration in fishes. (k)
7. Which part of the human respiratory system is common to both food and air? (k)
8. In which part of the human respiratory system is the glottis located? (k)
9. Why is larynx called sound box? (u)
10. In which region of the thoracic vertebrate does the trachea divide into right and left pulmonary bronchi? (u)
11. Which part of the respiratory system is referred as the conducting part of the respiratory system? (k)
12. Name the instrument used to measure the volume of respiration? (k)
13. What is the protective membrane of the lungs called? (k)
14. Name the primary site of exchange of gases in our body. (k)
15. Which is the respiratory or exchange part of the respiratory system? (k)
16. Name the dome shaped muscles found below the lungs which help in breathing. (k)
17. On an average how many times does a healthy human being breathe in a minute? (u)
18. How is the volume of air involved in breathing movements measured? (k)
19. Define tidal volume. (k)
20. What is the tidal volume in a healthy human being? (k)
21. Define inspiratory reserve volume. (k)
22. What is residual volume in a normal human being? (k)
23. Define Inspiratory capacity. (k)
24. What is the expiratory reserve volume in a human being? (k)
25. Define residual volume. (k)
26. State the volume of air that remains in the lungs after expiration. (k)
27. What is the residual volume in an average human being? (k)
28. How is inspiratory capacity calculated? (u)
29. How is expiratory capacity calculated? (u)
30. Define functional residual capacity. (k)
31. What is vital capacity? (k)
32. What is total lung capacity? (k)
33. Which is the primary site for exchange of respiratory gases? (k)
34. What is the partial pressure of oxygen in atmospheric air? (k)
35. What is the partial pressure of oxygen in alveoli? (k)
36. What is the partial pressure of oxygen in deoxygenated blood? (k)
37. What is the partial pressure of oxygen in oxygenated blood? (k)
38. What is the partial pressure of Oxygen in tissues? (k)
39. What is the partial pressure of carbon dioxide in atmospheric air? (k)
40. What is the partial pressure of carbon dioxide in alveoli? (k)
41. What is the partial pressure of carbon dioxide in the oxygenated blood? (k)
42. What is the partial pressure of carbon dioxide in deoxygenated blood? (k)
43. What is the partial pressure of carbon dioxide in the tissues?

44. What is the percentage of oxygen that is transported by RBC in blood? (k)
45. 97% of oxygen is transported by RBC in blood. How is the remaining 3% of oxygen carried? (u)
46. What is the percentage of carbon dioxide that is transported by RBC? (k)
47. What percentage of carbon dioxide is transported by blood in the form of Bicarbonate? (k)
48. Which pigment carries oxygen in blood? (k)
49. How many molecules of oxygen does a haemoglobin molecule carry? (k)
50. Define oxygen dissociation curve? (k)
51. How much of oxygen can be delivered to the tissues by 100 ml. of oxygenated blood under normal physiological conditions? (u)
52. Which enzyme helps in the transportation of carbon dioxide in our blood? (k)
53. How much of carbon dioxide can be delivered by 100 ml. of donated blood to the alveoli? (u)
54. In which component of blood do you find the enzyme carbonic anhydrase? (u)
55. In what form is 70% of carbon dioxide transported? (u)
56. Name the enzyme which catalyses the diffusion of carbon dioxide into RBC. (k)
57. Name the muscles which separate the thorax and abdomen. (k)
58. What do you call haemoglobin which carries carbon dioxide? (k)
59. Which region of the brain moderates the functions of the respiratory rhythm centre? (k)
60. Name the specialised centre in the medulla region of the brain which is responsible for regulation of respiration. (k)
61. What is Asthma? (k)
62. What is Emphysema? (k)
63. What is the major cause of Emphysema? (k)
64. How does cigarette smoking cause emphysema? (u)
65. Why is respiration in insects called direct? (u)
66. Why is exposure to carbon monoxide harmful to animals? (u)

TWO MARKS QUESTIONS:

67. Describe the structure of the diffusion membrane of alveoli. (u)
68. Give two examples of lower invertebrates, which breathe through simple diffusion. (k)
69. What is the use of oxygen dissociation curve? (k)
70. Which are the two stages of breathing? (k)
71. What are the factors which enable the binding of oxygen to haemoglobin?
72. Name two centres of our brain which regulates respiration. (k)
73. Mention any two disorders of the respiratory system. (k)
74. Write a brief note on asthma. (u)
75. Write a brief note on emphysema. (u)
76. Workers in certain industries involve in grinding and stone breaking. Why should they wear protective masks? (a)
77. Distinguish between IRV and ERV. (u)
78. Distinguish between vital capacity and total lung capacity. (u)
79. Define vital capacity. What is its significance? (u)
80. What are the major layers of the diffusion membrane? (k)
81. Define total lung capacity. How is it calculated? (u)
82. Which fluid filled membrane covers the lungs? What are its major functions? (u)
83. Name the organs of respiration in the following organisms: (a) Insects (b) Birds. (k)
84. Draw a neat labelled diagram of the oxygen dissociation curve. (s)
85. What is the importance of the conducting part of the respiratory system? (u)

86. Mention the factors which affect the rate of diffusion in the alveoli. (k)
87. What are the four functions of the conducting part of the respiratory system? (k)
88. What happens when:(a) Partial pressure of Carbon dioxide is increased? (b) Partial pressure of Oxygen is decreased?
89. Name the important parts involved in creating a pressure gradient between lungs and the atmosphere during normal respiration. (k)
90. Differentiate between Emphysema and occupational respiratory disorder.(u)

THREE MARKS QUESTIONS:

91. Explain the different parts of the respiratory tract in human beings. (u)
92. Define respiration. Mention the steps involved in respiration. (k)
93. Name the organs of respiration in the following animals: (a) Earthworm, (b) insects and (c) fish. (k)
94. Explain the role of muscles in the mechanism of breathing. (u)
95. Draw a neat labelled diagram of a section of alveolus with the pulmonary capillary. (s)
96. How is respiration regulated in the human body? (u)
97. Discuss the oxygen dissociation curve and the factors which help in the transport of oxygen. (a)
98. Explain how carbonic anhydrase helps in respiration. (u)
99. Discuss the variation in percentage of oxygen and carbon dioxide transported through plasma and haemoglobin. (a)
100. Explain the following respiratory volumes: (a) Inspiratory reserve volume (b) Expiratory reserve volume and (c) residual volume. (u)
101. Briefly describe the role of neural system in regulation of respiration.
102. What are the factors that affect the rate of diffusion between the blood and tissues? (U)
103. State the different modes of carbon dioxide transport in blood. (K)

FIVE MARKS QUESTIONS:

104. Draw a neat labelled diagram of the respiratory system of human being. (s)
105. List the five steps in respiration in a human being. (k)
106. Describe in brief the respiratory organs of man. (u)
107. Explain the mechanism of breathing in human being with neat labelled sketches. (u)
108. Explain how oxygen is transported from lungs to the tissues in human beings. (u)
109. Explain how carbon dioxide is transported from tissues to the lungs in human beings. (u)
110. What are pulmonary capacities? Discuss and give their approximate volumes. (a)
111. Explain the transport of oxygen and carbon dioxide between alveoli and tissues with a neat labelled diagram. (u)
112. Explain the role of neural system in regulation of respiration. (u)