

HEAD OFFICE

208, CD, LOCAL SHOPPING CENTER AGGARWAL SHOPPING PLAZA, PITAMPURA,

BRANCH-1

AYODHYA CHOWK SEC – 3 , ROHINI **BRANCH-2**

DC CHOWK SEC – 9, ROHINI

 9^{TH} & 10^{TH} MATHS / SCIENCE 11^{TH} & 12^{TH} – PHYSICS / CHEMISTRY / MATHS / BIOLOGY EXCLUSIVE BATCH FOR NEET / JEE ASPIRANTS Ph no. 9696 500 500 / 9696 400 400

BIOLOGY

CHAPTER- 17 BREATHING AND EXCHANGE OF GASES

(1 MARK)

| Q1. For completion of respiration process, write the given steps in sequential manner. |
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| (i) Diffusion of gases (O_2 and CO_2) across alveolar membrane. |
| (ii) Transport of gases by blood. |
| (iii) Utilisation of O_2 by the cells for catabolic reactions and resultant release of CO_2 . |
| (iv) Pulmonary ventilation by which atmospheric air is drawn in and CO₂ rich alveolar air is released out. |
| (v) Diffusion of O_2 and CO_2 between blood and tissues. |
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| Q2. Name the organs of respiration in the following organisms: |
| (a) Flatworm |
| (b) Birds |
| (c) Frog: |
| (d) Cockroach |
| Q3. A fluid filled double membranous layer surrounds the lungs. Name it and mention its important function. |
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| Q4.Name the important parts involved in creating a pressure gradient between lungs and the atmosphere during normal respiration. |
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| Q5. Complete the missing terms. | |
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| (a) Inspiratory Capacity (IC) = | +IRV |
| (b) = TV + ERV | |
| (c) Functional Residual Capacity (FRC) = ERV + | |
| Q6. What is tidal volume? | |
| Q7. What is the amount of O₂ supplied to tissues physiological conditions? | through every 100 mL of oxygenated blood under normal |
| Q8. A major percentage (97%) of O ₂ is transported (3%) of O ₂ transported? | d by RBCs in the blood. How is the remaining percentage |
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| Q9. Cigarette smoking causes emphysema. Give r | eason. |
| Q10.What is the site of gaseous exchange in an in | isect? |
| Q11. What prevents the collapsing of trachea, eve | on if yory little air is there? |
| , , , | en ii very littie ali is triere: |
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| Q12. Arrange the following terms based on their | volume in an ascending order: |
| (a) Tidal volume (TV) | |
| (b) Residual volume (RV) | |
| (c) Inspiratory Reserve volume (IRV) | |
| (d) Expiratory capacity (EC) | |
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Q13. Why does exchange of respiratory gases continue to occur in the lungs even if you hold the breath for 30 seconds?

| Q14. State the volume of air remaining in the lungs after a normal breathing. |
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| Q15. What will be the Po_2 and Pco_2 , in the atmospheric air compared to those in the alveolar air?- |
| (I) Po ₂ lesser, Pco ₂ , higher |
| (ii) Po ₂ higher, Pco ₂ , lesser |
| (iii) Po ₂ higher, Pco ₂ , higher |
| (iv) Po ₂ lesser, Pco ₂ , lesser |
| Q16. A blood vessel in the liver has blood with Po_2 of 45 mm Hg, which is much higher than the Po_2 of the tissues in the liver. Does the O_2 diffuse into the blood from the tissues or diffuse from the blood into the tissues? [HOTS) |
| Q17. The venous blood in the lung has a Pco ₂ of 46 mm Hg. Should the alveolar Pco ₂ exceed or be less than 46 mm Hg to result in diffusion of CO, from the blood into the alveolus? |
| (2 MARK) |
| Q18. What happens to the respiratory process when we go up a hill? |
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| Q19. What is the effect of pCO₂ on oxygen transport? |
| Q20. Define oxygen dissociation curve. Can suggest any reason for its sigmoidal pattern? |
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Q21. Give the differences between emphysema and occupational respiratory disorder.

| Q22. Diffusion of gases occurs in the alveolar region only and not in the other parts of the respiratory system. Why? |
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| Q23. Differentiate between IRV and ERV. |
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| Q24. Differentiate between inspiratory capacity and expiratory capacity. |
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| Q25. Diferentiate between vital capacity and total lung capacity. |
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| Q26. What is vital capacity? What is its significance? |
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| Q27. Describe the process of gaseous exchange between alveoli of lungs and blood in respect of partial pressure of respiratory gases. |
| Or |
| With reference to partial pressure of gases, explain how oxygen and carbon dioxide are exchanged between alveoli and blood during respiration. |
| Or |
| How are gases exchanged in the alveoli? Explain with reference to partial pressure. |
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(3 MARK)

| Q28.Does air play any role in the production of sound? What factors influence the quality of sound? |
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| Q29.Describe the role of haemoglobin in the transport or respiratory gases? |
| Q30. Explain the process of inspiration under normal conditions? |
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| (5 Mark) |
| Q31. Soha went for picnic with her friends near a lake. Suddenly they noticed that a man was drowning in the lake. Everyone was frightened, then Soha asked them to stop panicking and rather help the man. After the man was rescued, he was found unconscious. Soha then suggested that mouth to mouth artificial respiration should be given to save the man. One of her friend did the same finally, the man was saved. He thanked Soha and her friends for their help. |
| (a) Why is artificial respiration given? |
| (b) Can artificial respiration bring back a person to consciousness even after death? |
| (c) What values are shown by Soha? |
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| Q32. Explain the role of neural system in regulation of respiration. |
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Q33. How is respiration regulated?

| Q34. Varun, a student of class VIII is confused between breathing and respiration, as both the words appear in the chapter on respiration. Ankita, his elder sister explains in detail the two words and the processes. |
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| (a) Write two differences between the two words- breathing and respiration. |
| (b) Can there be respiration without breathing in multicellular organisms like human beings? Justify your answer. |
| (c) What value is shown by these two processes? |
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| Q35. Pulmonary capacities are derived, when two or more pulmonary volumes are considered together; they are of clinical significance. A student, Mrinal, has the idea that total lung capacity and vital capacity are one and the same. Please help him to understand that they are different by answering his following questions. |
| (a) What is vital capacity? What are the pulmonary/respiratory volumes in it? |
| (b) What is total lung capacity? Name the pulmonary volumes included in it. |
| (c) What value do you learn from the fact that pulmonary capacity is more significant in medical field than pulmonary volumes? |
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| Q36. Ramu was reading from his notebook that in human beings exchange of gases takes place only on the lung surface (alveoli). But his elder sister, Manisha in class XII, corrected him that exchange of gases takes place in lungs as well as in the tissues. |
| (a) How does exchange of gases take place in the tissues? |
| (b) Why does oxygen diffuse into the blood vessels in the lungs but out of the blood vessels in the tissues? |
| (c) What value do we get from learning about the exchange of gases? |
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| Q37. People working in certain industries, especially those involved in grinding or breaking stones and manufacturing cement, etc. suffer from some peculiar/specific respiratory diseases, though they are provided with protective masks and nasal filters. |
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| (a) What are such diseases that develop due to pollutants in the work places of individuals, called? |
| (b) Name two such diseases. |
| (c) What are the common symptoms shown by such workers? |
| (d) What value is shown by the industrialists in providing protective masks to the workers? |
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