

SARASWATI



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

9TH & 10TH MATHS / SCIENCE

11TH & 12TH – 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.

(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 CO_2 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.

(a) Inspiratory Capacity (IC) = _____ + IRV

(b)..... = TV + ERV

(c) Functional Residual Capacity (FRC) = ERV + _____

Q6. What is tidal volume?

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Q7. What is the amount of O₂ supplied to tissues through every 100 mL of oxygenated blood under normal physiological conditions?

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Q8. A major percentage (97%) of O₂ is transported by RBCs in the blood. How is the remaining percentage (3%) of O₂ transported?

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Q9. Cigarette smoking causes emphysema. Give reason.

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Q10. What is the site of gaseous exchange in an insect?

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Q11. What prevents the collapsing of trachea, even if very little air is there?

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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?

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Q14. State the volume of air remaining in the lungs after a normal breathing.

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Q15. What will be the P_{O_2} and P_{CO_2} , in the atmospheric air compared to those in the alveolar air?-

- (I) P_{O_2} lesser, P_{CO_2} , higher
 - (ii) P_{O_2} higher, P_{CO_2} , lesser
 - (iii) P_{O_2} higher, P_{CO_2} , higher
 - (iv) P_{O_2} lesser, P_{CO_2} , lesser
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Q16. A blood vessel in the liver has blood with P_{O_2} of 45 mm Hg, which is much higher than the P_{O_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)

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Q17. The venous blood in the lung has a P_{CO_2} of 46 mm Hg. Should the alveolar P_{CO_2} exceed or be less than 46 mm Hg to result in diffusion of CO_2 from the blood into the alveolus?

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(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 pCO_2 on oxygen transport?

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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.

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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. Differentiate 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 of respiratory gases?

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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?

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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.

(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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