Yakeen NEET 2.0 2026

Breathing and exchange of gases

Tapasya Practice Sheet.

1. Which of the following factors are favourable for the formation of oxyhemoglobin in alveoli? **(2024)**
(1) Low pCO_2 and High$^+$ concentration
(2) Low pCO_2 and High temperature
(3) High pO_2 and High CO_2
(4) High pO_2 and Lesser H^+ concentration

2. Match List I with List II: **(2024)**

	List-I		List-II
(A)	Expiratory capacity	(I)	Expiratory reserve volume + Tidal volume + Inspiratory reserve volume
(B)	Functional residual capacity	(II)	Tidal volume + Expiratory reserve volume
(C)	Vital capacity	(III)	Tidal volume + Inspiratory reserve volume
(D)	Inspiratory capacity	(IV)	Expiratory reserve volume + Residual Volume

Choose the correct answer from the options given below:
(1) A-II, B-I, C-IV, D-III
(2) A-I, B-III, C-II, D-IV
(3) A-II, B-IV, C-I, D-III
(4) A-III, B-II, C-IV, D-I

3. Vital capacity of lung is ____. **(2023)**
(1) IRV + ERV + TV – RV
(2) IRV + ERV + TV
(3) IRV + ERV
(4) IRV + ERV + TV + RV

4. Select the sequence of steps in Respiration.
(A) Diffusion of gases (O_2 and CO_2) across alveolar membrane.
(B) Diffusion of O_2 and CO_2 between blood and tissues.
(C) Transport of gases by the blood.
(D) Pulmonary ventilation by which atmospheric air is drawn in and CO_2 rich alveolar air is released out
(E) Utilisation of O_2 by the cells for catabolic reactions and resultant release of CO_2.
Choose the correct answer from the options given below :
(1) (B), (C), (E), (D), (A)
(2) (A), (C), (B), (E), (D)
(3) (D), (A), (C), (B), (E)
(4) (C), (B), (A), (E), (D)

5. Under normal physiological conditions in human being every 100 ml of oxygenated blood can deliver ml of O_2 to the tissues. **(2022)**
(1) 10 m² (2) 2 ml
(3) 5 ml (4) 4 ml

6. Which of the following is not the function of conducting part of respiratory system?
(1) Provides surface for diffusion of O_2 and CO_2
(2) It clears inhaled air from foreign particles
(3) Inhaled air is humidified
(4) Temperature of inhaled air is brought to body temperature

7. The partial pressures (in mm Hg) of oxygen (O_2) and carbon dioxide (CO_2) at alveoli (the site of diffusion) are: **(2021)**
(1) $pO_2 = 104$ and $pCO_2 = 40$
(2) $pO_2 = 40$ and $pCO_2 = 45$
(3) $pO_2 = 95$ and $pCO_2 = 40$
(4) $pO_2 = 159$ and $pCO_2 = 0.3$

8. Select the favourable conditions required for the formation of oxyhaemoglobin at the alveoli. **(2021)**
(1) High pO_2, low pCO_2, less H^+, lower temperature
(2) Low pO_2, high pCO_2, more H^+, higher temperature
(3) High pO_2, high pCO_2, less H^+, higher temperature
(4) Low pO_2, low pCO_2, more H^+, higher temperature

9. The Total Lung Capacity (TLC) is the total volume of air accomodated in the lungs at the end of a forced inspiration. This includes : **(2020)**

(1) RV; IC (Inspiratory Capacity); EC (Expiratory Capacity); and ERV
(2) RV; ERV; IC and EC
(3) RV; ERV; VC (Vital Capacity) and FRC (Functional Residual Capacity)
(4) BV (Residual Volume); ERV (Expiratory Reserve Volume); TV (Tidal Volume); and IRV (Inspiratory Reserve Volume)

10. Identify the wrong statement with reference to transport of oxygen. **(2020)**

(1) Low pCO_2 in alveoli favours the formation of oxyhaemoglobin.
(2) Binding of oxygen with haemoglobin is mainly related to partial pressure of O_2.
(3) Partial pressure of CO_2 can interfere with O_2 binding with haemoglobin.
(4) Higher H^+ conc. in alveoli favours the formation of oxyhaemoglobin.

11. Select the correct events that occur during inspiration. **(2020)**

(a) Contraction of diaphragm
(b) Contraction of external inter-costal muscles
(c) Pulmonary volume decreases
(d) Intra pulmonary pressure increases

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

12. Due to increasing air-borne allergens and pollutants, many people in urban areas are suffering from respiratory disorder causing wheezing due to **(2019**

(1) benign growth on mucous lining of nasal cavity
(2) inflammation of bronchi and bronchioles
(3) proliferation of fibrous tissues and damage of the alveolar walls
(4) reduction in the secretion of surfactants by pneumocytes.

13. 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 (2) 1700 mL
(3) 2200 mL (4) 2700 mL

14. Which of the following causes an increase in the volume of the thoracic chamber in the dorso-ventral axis?

(1) Contraction of external inter-costal muscles.
(2) Relaxation of external inter-costal muscles.
(3) Contraction of diaphragm.
(4) Relaxation of diaphragm

15. How many animals in the given list perform branchial Cl respiration?

Earthworm, Fish, Frog (adult), Land insects, Reptiles, Tadpole, Aquatic arthropods, Flatworm, aquatic Molluscs, Birds

(1) Six
(2) Four
(3) Three
(4) Five

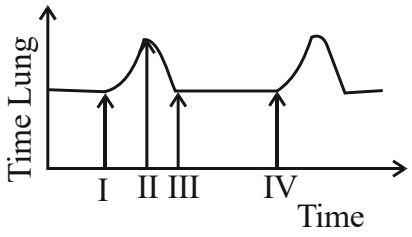
16. Every 300 mL of oxygenated blood can deliver around ____ of O_2 to the tissues under normal physiological conditions.

(1) 5mL
(2) 15 mL
(3) 25mL
(4) 35 mL

17. The central chemoreceptors are directly affected by

(1) H^+ concentration in blood
(2) Oxygen concentration in blood
(3) H^+ concentration in CSF
(4) Oxygen in trachea

18. The given figure illustrates the changes in lung volume during the process of breathing. The change from II to III indicates the:



(1) movement of diaphragm away from the lungs.
(2) expansion of the thoracic cavity.
(3) Movement of air out of lungs
(4) expansion of ribs

19. Which of the following would have the same O_2 content?
(1) Blood entering the lungs – Blood leaving the lungs
(2) Blood entering the right side of the heart – Blood leaving the right side of the heart
(3) Blood entering the right side of the heart – Blood leaving the left side of the heart
(4) Blood entering the tissue capillaries- Blood leaving the right side of the heart

20. During inspiration, the outer pleural membrane moves in close contact with the:
(1) Lung surface
(2) Diaphragm
(3) Thoracic lining
(4) Mediastinum

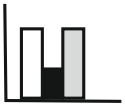
21. A right shift in the Oxygen Dissociation Curve indicates:
(1) Increased affinity of haemoglobin for oxygen.
(2) Decreased oxygen delivery to tissues.
(3) Conditions favorable for oxygen dissociation from haemoglobin.
(4) Higher oxygen saturation at a given pO_2

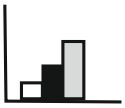
22. The maximum volume of air forcefully exhaled after taking the deepest possible breath is called:
(1) tidal volume
(2) vital capacity
(3) residual volume
(4) total respiratory volume

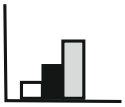
23. Gaseous exchange is a __X__ process. It is primarily driven by ___Y___
Choose the options which fill the blanks correctly.

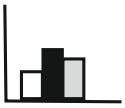
	X	Y
(1)	active	ATP hydrolysis
(2)	passive	concentration gradients
(3)	facilitated	carrier proteins
(4)	osmotic	pressure differences

24. Choose the combination of conditions in a tissue that would influence the most rapid dissociation of oxyhaemoglobin.
□ Temperature
■ Oxygen
▣ Carbon dioxide

(1) Levels  Factors

(2) Levels  Factors

(3) Levels  Factors

(4) Levels  Factors

25. Spirometer can assess all of these lung volumes, except:
(1) inspiratory reserve volume.
(2) expiratory reserve volume.
(3) residual volume.
(4) tidal volume.

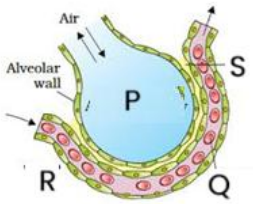
26. The partial pressure of CO_2 is highest at;
(1) at alveolar level.
(2) at tissue level.
(3) in atmosphere.
(4) in oxygenated blood.

27. Which enzyme converts carbon dioxide and water into carbonic acid in red blood cells?
(1) Carbonic anhydrase
(2) Catalase
(3) Amylase
(4) Lipase

28. What is the approximate partial pressure of oxygen (pO_2) in systemic arteries?
(1) 40 mmHg
(2) 45 mmHg
(3) 80 mmHg
(4) 95 mmHg

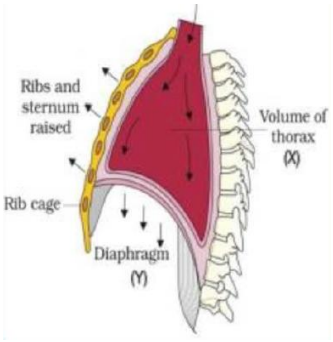
29. Which of the following factors favours the formation of carbaminohaemoglobin in tissue?
(1) $pO_2\downarrow$, $pCO_2\uparrow$, $H^+\uparrow$, Temperature↑
(2) $pO_2\uparrow$, $pCO_2\uparrow$, $H^+\downarrow$, Temperature↑
(3) $pO_2\uparrow$, $pCO_2\downarrow$, $H^+\downarrow$, Temperature↑
(4) $pO_2\downarrow$, $pCO_2\uparrow$, $H^+\uparrow$, Temperature↑

30. The figure given below shows a small part of the human lung where the exchange of gases takes place. In which one of the options given below, the any one part P, Q, R or S is correctly identified along with its function?



(1) Red blood cell - transport of CO_2 mainly
(2) Arterial capillary – passes oxygen to tissues
(3) Alveolar cavity - the main site of exchange of respiratory gases
(4) Capillary wall - exchange of O_2 and CO_2 takes place here

31. Breathing involves two stages: inspiration during which atmospheric air is drawn in and expiration by which the alveolar air is released out. The diagram below shows mechanism of inspiration. Identify 'X' and 'Y'.



(1) (X): Volume of thorax decreased, (Y): Diaphragm relaxes
(2) (X): Volume of thorax increased, (Y): Diaphragm relaxes
(3) (X): Volume of thorax decreased, (Y): Diaphragm contracts
(4) (X): Volume of thorax increased, (Y): Diaphragm contracts

32. Besides RBC, blood plasma also carries O_2 in solution. The percentage is-
(1) 3%
(2) 97%
(3) 49%
(4) 25%

33. Select the option with the correct statements.
I. Asthma causes wheezing sound.
II. Emphysema is a chronic disorder
III. One of the major causes of emphysema is cigarette smoking.
IV. Bronchioles are damaged in emphysema
(1) I, II and III only
(2) I, III and IV only
(3) II and III only
(4) I, II, III and IV

34. Following are the statements with reference to the regulation of respiration.
(I) Neural signal from pneumotaxic centre can reduce the duration of inspiration.
(II) A chemosensitive area is less sensitive to CO_2 and hydrogen ions.
(III) Receptors associated with aortic arch and carotid artery also can recognise changes in CO_2 and H^+ concentration.
(IV) The role of oxygen in the regulation of respiratory rhythm is quite significant.
Choose the option with the correct statements.
(1) II and III (2) I and IV
(3) I and III (4) I, III and IV

35. How many of the following statements are incorrect?

(a) CO_2 is carried by haemoglobin as carbamino-haemoglobin.

(b) RBCs contain minute quantities of carbonic anhydrase

(c) At the alveolar site, HCO^{3-} and H^+ are formed.

(d) Every 100 ml of deoxygenated blood delivers approximately 5 ml of CO_2 to the alveoli.

(1) One

(2) Two

(3) Three

(4) Four

36. Which of the following statements are true or false?

I. The diffusion membrane is made up of squamous epithelium of alveoli and the basement substance alone.

II. The total thickness of diffusion membrane is much less than a millimetre.

III. The solubility of CO_2 is 20-25 times higher than that of O_2.

IV. The amount of O_2 that can diffuse through the diffusion membrane per unit difference in partial pressure is much higher compared to that of CO_2.

V. Solubility of the gases is an important factor that can affect the rate of diffusion.

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

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

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

(4) I, II, IV and V are false, but only III is true.

37. Which of the following are incorrect?

I. Inspiration can occur if there is a negative pressure in the lungs with respect to atmospheric pressure.

II. Inspiration is initiated by the relaxation of diaphragm.

III. The contraction of external inter-costal muscles lifts up the ribs.

IV. On an average, a healthy human breathes 2-6 times/minute.

(1) I and III (2) II and III

(3) II and IV (4) I and IV

38. Match List-I with List-II to find out the correct option.

	List-I		List-II
A.	Total lung capacity	I.	Total volume of air a person can expire after a normal inspiration.
B.	Vital capacity	II.	Total volume of air accommodated in the lungs at the end of a forced inspiration.
C.	Functional residual capacity	III.	The maximum volume of air a person can breathe in after a forced expiration.
D.	Expiratory capacity	IV.	Volume of air that will remain in the lungs after a normal expiration.

(1) A-(I), B-(IV), C-(III), D-(II)

(2) B-(II), B-(III), C-(IV), D-(1)

(3) C-(1), B-(IV), D-(II), D-(III)

(4) D-(III), B-(1), C-(IV), D-(II)

39. **Statement-I:** alveoli gets inflamed in asthma

Statement-II: In asthma, patient has difficulty in breathing and produces a wheezing sound

(1) Statement I and Statement II both are correct.

(2) Statement I is correct, but Statement Il is incorrect.

(3) Statement I is incorrect, but Statement II is correct.

(4) Statement I and Statement II both are incorrect.

40. **Statement-I:** Exchange of O_2 and CO_2 at the alveoli and tissues occur by diffusion.

Statement-II: In the tissues, pO_2 is high.

(1) Statement I and Statement II both are correct.

(2) Statement I is correct, but Statement Il is incorrect.

(3) Statement I is incorrect, but Statement II is correct.

(4) Statement I and Statement II both are incorrect.

41. **Statement-I:** Earthworms have tracheal tubes to transport atmospheric air within the body.
Statement-II: Flatworms exchange O_2 with CO_2 by simple diffusion over their entire body surface.
(1) Statement I and Statement II both are correct.
(2) Statement I is correct, but Statement Il is incorrect.
(3) Statement I is incorrect, but Statement II is correct.
(4) Statement I and Statement II both are incorrect.

42. **Statement-I:** Trachea divides at the level of 7th thoracic vertebra.
Statement-II: Terminal bronchioles are supported by incomplete cartilaginous rings.
(1) Statement I and Statement II both are correct.
(2) Statement I is correct, but Statement Il is incorrect.
(3) Statement I is incorrect, but Statement II is correct.
(4) Statement I and Statement II both are incorrect.

43. **Statement-I:** Lungs are covered by a double layered pleura.
Statement-II: parietal pleura towards the lung surface and visceral towards the thoracic lining.
(1) Statement I and Statement II both are correct.
(2) Statement I is correct, but Statement Il is incorrect.
(3) Statement I is incorrect, but Statement II is correct.
(4) Statement I and Statement II both are incorrect.

44. **Assertion (A):** An increase in the partial pressure of carbon dioxide (pCO_2) in blood leads to increased breathing rate.
Reason (R): High pCO_2 levels stimulate the chemoreceptors.
(1) Both Assertion (A) and Reason (R) are the true, and Reason (R) is a correct explanation of Assertion (A).
(2) Both Assertion (A) and Reason (R) are the true, but Reason (R) is not a correct explanation of Assertion (A).
(3) Assertion (A) is true, and Reason (R) is false.
(4) Assertion (A) is false, and Reason (R) is true.

45. **Assertion (A):** CO_2 travels as bicarbonate dissolved in the plasma to alveoli.
Reason (R): bicarbonate is formed at alveolar site.
(1) Both Assertion (A) and Reason (R) are the true, and Reason (R) is a correct explanation of Assertion (A).
(2) Both Assertion (A) and Reason (R) are the true, but Reason (R) is not a correct explanation of Assertion (A).
(3) Assertion (A) is true, and Reason (R) is false.
(4) Assertion (A) is false, and Reason (R) is true.

46. **Assertion (A):** Occupational respiratory disorders can cause serious lung damage.
Reason (R): Long exposure to the dust produced by grinding and stone breaking industries can give rise to inflammation, leading to fibrosis and thus causing lung damage.
(1) Both Assertion (A) and Reason (R) are the true, and Reason (R) is a correct explanation of Assertion (A).
(2) Both Assertion (A) and Reason (R) are the true, but Reason (R) is not a correct explanation of Assertion (A).
(3) Assertion (A) is true, and Reason (R) is false.
(4) Assertion (A) is false, and Reason (R) is true.

Answer Key

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

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