CLASS XI, CH-14

Set 2: Knowledge-Based MCQs

1. The pharynx opens into the trachea through:
A) Bronchi
B) Larynx
C) Nasal chamber
D) Alveoli

2. The larynx is commonly known as the:
A) Sound box
B) Wind pipe
C) Food pipe
D) Nose cavity

3. The primary bronchi divide into:
A) Terminal bronchioles
B) Secondary and tertiary bronchi
C) Alveoli
D) Pleura

4. Cartilaginous rings in the trachea are:
A) Complete
B) Incomplete
C) Absent
D) Bony

5. The pleural membranes enclose:
A) Heart
B) Lungs
C) Brain
D) Liver

6. The inner pleural membrane is in contact with:
A) Thoracic wall
B) Lungs
C) Ribs
D) Diaphragm

7. The conducting part of the respiratory system is responsible for:
A) Gas exchange
B) Air transport, cleaning, and humidification
C) Sound production only
D) None of these

8. The respiratory or exchange part includes:
A) Bronchi and bronchioles
B) Trachea and larynx

C) Alveoli and alveolar ducts
D) Nasal cavity

9. The thoracic cavity is bounded below by:
A) Ribs
B) Diaphragm
C) Pleura
D) Sternum

10. The thoracic chamber is airtight due to:
A) Elastic ribs
B) Closed pleural cavity
C) Laryngeal opening
D) Bronchioles

11. Inspiration occurs when:
A) Diaphragm relaxes
B) Thoracic volume decreases
C) Intrapulmonary pressure becomes negative
D) Rib cage moves downward

12. The intercostal muscles are located:
A) In diaphragm
B) Between ribs
C) In neck
D) In alveoli

13. The contraction of external intercostal muscles:
A) Raises the ribs and sternum
B) Lowers the ribs
C) Contracts alveoli
D) None

14. The movement of air into the lungs is due to:
A) Pressure gradient
B) Temperature difference
C) Salinity difference
D) Osmotic difference

15. Relaxation of diaphragm leads to:
A) Increase in thoracic volume
B) Expiration
C) Inspiration
D) None

16. The volume of air exchanged per minute in a healthy person is about:
A) 2000–3000 mL
B) 6000–8000 mL
C) 10,000–12,000 mL
D) 3000–4000 mL

17. Instrument used to measure respiratory volume and capacity:
A) Spirometer

B) Barometer
C) Manometer
D) Flowmeter

18. Inspiratory capacity equals:
A) TV + IRV
B) TV + ERV
C) ERV + RV
D) IRV + ERV

19. Expiratory capacity equals:
A) TV + ERV
B) TV + IRV
C) IRV + ERV
D) ERV + RV

20. Vital capacity includes:
A) IRV + TV + ERV
B) TV + IRV
C) ERV + RV
D) IRV + RV

21. Total lung capacity equals:
A) VC + RV
B) ERV + IRV
C) ERV + TV
D) IRV + TV

22. The main site of gas exchange in the human body is:
A) Bronchi
B) Alveoli
C) Trachea
D) Larynx

23. The process of gas exchange depends primarily on:
A) Enzyme activity
B) Pressure gradient
C) Hormones
D) Electrical signals

24. The partial pressure of oxygen in atmospheric air is:
A) 40 mm Hg
B) 104 mm Hg
C) 159 mm Hg
D) 95 mm Hg

25. The partial pressure of CO_2 in alveolar air is:
A) 0.3 mm Hg
B) 40 mm Hg
C) 45 mm Hg
D) 104 mm Hg

26. The alveolar membrane consists of:
A) One thick epithelial layer
B) Three thin layers
C) Two thick layers
D) One muscular layer

27. Oxygen diffuses from alveoli to blood because:
A) pO_2 in alveoli < pO_2 in blood
B) pO_2 in alveoli > pO_2 in blood
C) pCO_2 in alveoli > pCO_2 in blood
D) None

28. CO_2 diffuses from tissues to blood because:
A) pCO_2 in tissues > pCO_2 in blood
B) pCO_2 in blood > pCO_2 in tissues
C) pO_2 in blood > pO_2 in tissues
D) None

29. Solubility of CO_2 is:
A) Equal to O_2
B) 10–15 times higher
C) 20–25 times higher
D) 2 times higher

30. Percentage of O_2 transported dissolved in plasma:
A) 97%
B) 3%
C) 20%
D) 10%

31. Percentage of CO_2 transported as carbaminohaemoglobin:
A) 20–25%
B) 70%
C) 7%
D) 50%

32. Oxygen combines with haemoglobin in a:
A) Reversible manner
B) Irreversible manner
C) Temporary manner only
D) Non-specific way

33. The curve obtained by plotting pO_2 vs % Hb saturation is:
A) Oxyhaemoglobin curve
B) Oxygen dissociation curve
C) Carbonic curve
D) Respiratory curve

34. At alveolar site, conditions favour:
A) Oxyhaemoglobin formation
B) Oxyhaemoglobin dissociation
C) CO_2 formation
D) Hydrogen ion accumulation

35. At tissue site, oxygen dissociates due to:
A) High pO_2, low pCO_2
B) Low pO_2, high pCO_2, high temperature
C) Low pCO_2, low temperature
D) Low H^+ concentration

36. Each 100 mL of oxygenated blood delivers about ___ mL O_2 to tissues.
A) 2 mL
B) 5 mL
C) 10 mL
D) 20 mL

37. CO_2 is transported in blood mainly as:
A) CO_2 gas
B) Bicarbonate ions
C) Carboxyhaemoglobin
D) Carbonic acid

38. Carbonic anhydrase catalyses:
A) $CO_2 + H_2O \rightleftharpoons H_2CO_3$
B) $O_2 + Hb \rightleftharpoons HbO_2$
C) $CO_2 + Hb \rightleftharpoons HbCO_2$
D) $H_2O + O_2 \rightleftharpoons H_2O_2$

39. At the alveoli, the carbonic acid breaks down into:
A) CO_2 and H_2O
B) CO and H_2O
C) H_2 and CO_2
D) None

40. Respiratory rhythm centre is located in:
A) Pons
B) Medulla oblongata
C) Cerebellum
D) Cerebrum

41. Pneumotaxic centre helps in:
A) Regulating inspiration duration
B) Stimulating diaphragm directly
C) Controlling heart rate
D) Adjusting blood pressure

42. Chemosensitive area responds to:
A) High O_2 levels
B) High CO_2 and H^+ levels
C) Low temperature
D) Low pH only

43. Oxygen plays what role in respiration regulation?
A) Major
B) Insignificant
C) Central
D) Indirect

44. Asthma involves:
A) Alveolar wall rupture
B) Inflammation of bronchi/bronchioles
C) Dust accumulation
D) Lung cancer

45. Emphysema involves:
A) Decrease in alveolar surface area
B) Increase in alveolar surface area
C) Constriction of trachea
D) None

46. Major cause of emphysema is:
A) Smoking
B) Dust exposure
C) Asthma
D) Cold weather

47. Occupational lung disease is due to:
A) Exposure to sunlight
B) Dust inhalation
C) Fungal infection
D) High humidity

48. Occupational lung disease may cause:
A) Fibrosis
B) Emphysema
C) Pneumonia
D) Both A and B

49. The best protection for occupational respiratory disorder:
A) Regular exercise
B) Wearing masks
C) Sleeping early
D) High-protein diet

50. The respiratory surface of humans is lined by:
A) Stratified epithelium
B) Squamous epithelium
C) Columnar epithelium
D) Ciliated epithelium

✅ **Answer Key (Set 2)**

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