

## **Chapter 01: The Anatomy and Physiology of the Respiratory System**

1. Which of the following are primary components of the upper airway?
  - a. nose, oral cavity, pharynx
  - b. larynx, trachea, and bronchi
  - c. nose, oral cavity, larynx and trachea
  - d. nose, oral cavity, pharynx, larynx, and trachea

**ANSWER:** a

2. Which of the following is NOT a primary function of the nose?
  - a. humidify inspired gas
  - b. conduct gas and food to lower airway
  - c. filter the inspired gas
  - d. warm the inspired gas

**ANSWER:** b

3. Which of the following are functions of the upper airway?
  - I. Conduction of gas to lower airway
  - II. Prevent foreign materials from entering lower airway
  - III. Warm, filter, and humidify inspired gas
  - IV. Aid in speech and smell
  - a. I, II, III, and IV
  - b. I, III, and IV only
  - c. I, II, and III only
  - d. I, II, and IV only

**ANSWER:** a

4. Which structures form the upper third of the nose?
  - I. Nasal bones
  - II. Frontal process of maxilla
  - III. Lateral nasal cartilage
  - IV. Greater alar cartilage
  - a. Nasal bones
  - b. Frontal process of maxilla
  - c. Lateral nasal cartilage
  - d. Greater alar cartilage

**ANSWER:** b

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5. Which structure form the lower two-thirds of the nose?

- I. Lateral nasal cartilage
- II. Lesser and greater alar cartilages
- III. Septal cartilage
- IV. Fibrous fatty tissue

- a. Lateral nasal cartilage
- b. Lesser and greater alar cartilages
- c. Septal cartilage
- d. Fibrous fatty tissue

**ANSWER: c**

6. What is the term for widening of the nostrils that can occur during respiratory distress?

- a. grunting
- b. retractions
- c. alar collapse
- d. nasal flaring

**ANSWER: d**

7. Which of the following structures form the anterior nasal septum?

- I. Septal cartilage
- II. Vomer
- III. Perpendicular plate of ethmoid bone
- IV. Frontal process of maxilla

- a. Septal cartilage
- b. Vomer
- c. Perpendicular plate of ethmoid bone
- d. Frontal process of maxilla

**ANSWER: a**

8. The lymphatic channels are larger and more numerous in what location?

- a. upper lobes
- b. right lower lobe
- c. left lower lobe
- d. middle lobes

**ANSWER: b**

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9. What is the term for the openings created by the alae nasi and septal cartilage?
- a. nares
  - b. glottis
  - c. vestibule
  - d. choana

*ANSWER: a*

10. What type of epithelium lines the anterior third of the nasal cavity?
- a. cuboidal
  - b. pseudostratified ciliated columnar
  - c. stratified squamous
  - d. pseudostratified ciliated squamous

*ANSWER: c*

11. In which structure would vibrissae normally be found?
- a. oropharynx
  - b. laryngopharynx
  - c. nasal cavity
  - d. trachea

*ANSWER: c*

12. What is the submucosal layer of the tracheobronchial tree?
- a. lamina propria
  - b. cartilaginous layer
  - c. epithelial lining
  - d. mucous blanket

*ANSWER: a*

13. What is another term for conchae?
- a. alae
  - b. choana
  - c. vestibule
  - d. turbinates

*ANSWER: d*

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14. Where is the olfactory region located in the nasal cavity?

- a. choana
- b. vestibule
- c. superior and middle turbinates
- d. middle and inferior turbinates

**ANSWER: c**

15. Which of the following sinuses are considered to be paranasal sinuses?

- I. Maxillary
- II. Frontal
- III. Ethmoid
- IV. Sphenoid

- a. Maxillary
- b. Frontal
- c. Ethmoid
- d. Sphenoid

**ANSWER: a**

16. What effect, if any, would be expected from the topical application of phenylephrine on the nasal mucosa?

- a. vasoconstriction
- b. vasodilation
- c. no known effect
- d. bronchospasm

**ANSWER: a**

17. Among pediatric patients, in which age range is epistaxis most prevalent?

- a. 10-14 years
- b. 2-10 years
- c. 8-16 years
- d. newborn -2 years

**ANSWER: b**

18. Approximately what portion of the sense of taste is reliant upon the sense of smell?

- a. 60%
- b. 80%
- c. 40%
- d. 20%

**ANSWER: b**

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19. Which of the following can cause sinusitis?

- I. Upper respiratory infection
- II. Dental infection
- III. Air travel
- IV. Scuba diving

- a. Upper respiratory infection
- b. Dental infection
- c. Air travel
- d. Scuba diving

**ANSWER:** b

20. In the oral cavity, what is the term for the space between the teeth and lips?

- a. vibrissae
- b. ventricle
- c. vallecula
- d. vestibule

**ANSWER:** d

21. What is the name of the structure that secures the tongue to the floor of the mouth?

- a. uvula
- b. extrinsic lingual muscles
- c. intrinsic lingual muscles
- d. lingual frenulum

**ANSWER:** d

22. How many ribs are identified as true ribs, attached directly to the sternum?

- a. seven
- b. eight
- c. four
- d. six

**ANSWER:** a

23. To what structure is the uvula attached?

- a. hard palate
- b. palatopharyngeal arch
- c. palatoglossal arch
- d. soft palate

**ANSWER:** d

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24. What is another name for the palatine tonsils?

- a. adenoids
- b. faucial
- c. lingual
- d. pharyngeal

*ANSWER: b*

25. Which structure extends from the posterior nares to the superior portion of the soft palate?

- a. oropharynx
- b. palatine tonsils
- c. nasopharynx
- d. tongue

*ANSWER: c*

26. Which epithelium is present in the nasopharynx?

- a. pseudostratified squamous
- b. stratified squamous
- c. cuboidal
- d. pseudostratified ciliated columnar

*ANSWER: d*

27. What is another name for pharyngeal tonsils?

- a. palatine tonsils
- b. lingual tonsils
- c. faucial tonsils
- d. adenoids

*ANSWER: d*

28. What is another name for the pharyngotympanic tubes?

- a. adenoids
- b. conchae
- c. auditory
- d. faucial

*ANSWER: c*

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29. What is the most frequent cause of hearing loss in young children?

- a. tonsillitis
- b. pharyngitis
- c. sinusitis
- d. otitis media

*ANSWER: d*

30. Which structure extends from the soft palate to the base of the tongue?

- a. nasopharynx
- b. oropharynx
- c. uvula
- d. laryngopharynx

*ANSWER: b*

31. What type of epithelium is found in the oropharynx?

- a. stratified squamous
- b. pseudostratified squamous
- c. pseudostratified ciliated columnar
- d. cuboidal

*ANSWER: a*

32. What structure is located between the glossoepiglottic folds in the posterior oropharynx?

- a. vallecula epiglottica
- b. lingual tonsils
- c. rima glottidis
- d. palatine tonsils

*ANSWER: a*

33. What spoon-shaped fibrocartilaginous structure covers the opening of the larynx during swallowing?

- a. vocal folds
- b. base of the tongue
- c. vallecula
- d. epiglottis

*ANSWER: d*

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34. What is a common site for misplacement of endotracheal tubes during emergency intubation?
- a. stomach
  - b. left mainstem bronchus
  - c. esophagus
  - d. left upper lobar bronchus

**ANSWER: c**

35. Which structure extends from the base of the tongue to the upper end of the trachea?
- a. laryngopharynx
  - b. thyroid gland
  - c. larynx
  - d. rima glottidis

**ANSWER: c**

36. Which of the following are functions of the larynx?
- I. Passageway for gas
  - II. Protects against aspiration
  - III. Generation of sounds for speech
  - IV. Warming and filtration of inspired gas
- a. Passageway for gas
  - b. Protects against aspiration
  - c. Generation of sounds for speech
  - d. Warming and filtration of inspired gas

**ANSWER: b**

37. Which of the cartilages of the larynx are unpaired?
- a. thyroid, epiglottis, and arytenoid
  - b. arytenoid, cuneiform, and corniculate
  - c. thyroid, cricoid, and cuneiform
  - d. thyroid, epiglottis, and cricoid

**ANSWER: d**

38. To what structure does the upper portion of the thyroid cartilage attach by a membrane?
- a. mandible
  - b. hyoid bone
  - c. epiglottis
  - d. tongue

**ANSWER: b**

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39. Which laryngeal cartilage is primarily responsible for preventing food, liquids, and foreign bodies from entering the lower airways?
- a. cricoid
  - b. epiglottis
  - c. thyroid
  - d. corniculate

**ANSWER: b**

40. Which laryngeal cartilage is shaped like a signet ring and forms a large portion of the posterior laryngeal wall?
- a. epiglottis
  - b. cricoid
  - c. cuneiform
  - d. corniculate

**ANSWER: b**

41. Which of the laryngeal cartilages are single?

- I. Cuneiform
- II. Thyroid
- III. Epiglottis
- IV. Cricoid

- a. Cuneiform
- b. Thyroid
- c. Epiglottis
- d. Cricoid

**ANSWER: b**

42. What is the space between the true vocal cords called?
- a. vallecula
  - b. vestibule
  - c. rima glottidis
  - d. choana

**ANSWER: c**

43. What is **not** a common cause of posterior nosebleeds?

- a. nasal tumors
- b. serious nose trauma
- c. high altitude
- d. drug abuse

**ANSWER: c**

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44. Which of the following is a subglottic airway obstruction usually caused by the parainfluenza virus?
- a. pharyngitis
  - b. laryngotracheobronchitis (LTB)
  - c. epiglottitis
  - d. tonsillitis

**ANSWER:** b

45. What is causative agent in the majority of cases of acute epiglottitis?
- a. Streptococcus
  - b. MRSA
  - c. Parainfluenza virus
  - d. Haemophilus influenzae type B

**ANSWER:** d

46. Which type of epithelium is present in the larynx above the vocal cords?
- a. pseudostratified squamous
  - b. stratified squamous
  - c. cuboidal
  - d. pseudostratified ciliated columnar

**ANSWER:** b

47. Which laryngeal muscles are primarily responsible for adduction of the vocal cords?
- a. transverse arytenoid
  - b. lateral cricoarytenoid
  - c. posterior cricoarytenoid
  - d. thyroarytenoid

**ANSWER:** b

48. Which of the following muscles pull the larynx and hyoid downward?
- a. suprahyoid group
  - b. cricothyroid muscles
  - c. posterior cricoarytenoid muscles
  - d. infrahyoid group

**ANSWER:** d

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49. What is the secondary vital function of the larynx?

- a. Gag reflex
- b. Babinski reflex
- c. Valsalva's maneuver
- d. Moro maneuver

**ANSWER: c**

50. What type of epithelium extends from the trachea to the respiratory bronchioles?

- a. stratified squamous
- b. pseudostratified squamous
- c. cuboidal
- d. pseudostratified ciliated columnar

**ANSWER: d**

51. What is the primary component of the mucous blanket in the tracheobronchial tree?

- a. glycoproteins
- b. water
- c. lipids
- d. DNA

**ANSWER: b**

52. At what level in the tracheobronchial tree are cilia completely absent?

- a. respiratory bronchioles
- b. bronchioles
- c. lobar bronchi
- d. mainstem bronchi

**ANSWER: a**

53. Which cranial nerve innervates the submucosal glands?

- a. tenth
- b. ninth
- c. seventh
- d. eighth

**ANSWER: a**

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54. What is the term for the viscous layer of the mucous blanket?

- a. gel
- b. epoxic
- c. basal
- d. sol

**ANSWER: a**

55. How many times per minute do the cilia in the tracheobronchial tree move?

- a. 1500 times
- b. 2500 times
- c. 500 times
- d. 50 times

**ANSWER: a**

56. When excessive secretions are present in the lungs, what term describes the sound heard by auscultation over large airways during exhalation?

- a. crackles
- b. stridor
- c. rhonchi
- d. wheeze

**ANSWER: c**

57. Which of the following factors can alter the mucociliary transport mechanism?

- I. Excessive bronchial secretions
- II. Tobacco smoke
- III. Hypoxia
- IV. Air pollution

- a. Excessive bronchial secretions
- b. Tobacco smoke
- c. Hypoxia
- d. Air pollution

**ANSWER: b**

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58. Where are mast cells located in the tracheobronchial tree?

- I. Lamina propria
- II. Intra-alveolar septa
- III. Sub-mucosal glands

- a. Lamina propria
- b. Intra-alveolar septa
- c. Sub-mucosal glands
- d.

**ANSWER: a**

59. Approximately how many IgE receptor sites are present on a single mast cell?

- a. 1,000 - 5,000
- b. 1,000,000 - 5,000,000
- c. 100 - 500
- d. 100,000 - 500,000

**ANSWER: d**

60. When degranulation of mast cells occurs and chemical mediators are released, which of the following would occur in the lungs?

- I. Increased vascular permeability
- II. Increased mucus production
- III. Smooth muscle relaxation
- IV. Vasodilation with edema

- a. Increased vascular permeability
- b. Increased mucus production
- c. Smooth muscle relaxation
- d. Vasodilation with edema

**ANSWER: a**

61. What is the term for the cartilaginous airways?

- a. respiratory unit
- b. acinus
- c. conducting zone
- d. tracheobronchial tree

**ANSWER: c**

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62. In cm, what is the average diameter of the adult trachea?

- a. 0.5 - 1.5 cm
- b. 2.0-3.5 cm
- c. 0.75 - 1.0 cm
- d. 1.5 - 2.5 cm

**ANSWER:** d

63. What is the term for the bifurcation of the trachea?

- a. hilum
- b. carina
- c. concha
- d. choana

**ANSWER:** b

64. In an adult, at what angle does the left mainstem bronchus branch from the trachea?

- a. 40-60 degrees
- b. 10-15 degrees
- c. 60-75 degrees
- d. 25-40 degrees

**ANSWER:** a

65. What is the recommended “safe range” for endotracheal tube cuff pressures?

- a. 30-35 mm Hg
- b. 45-50 mm Hg
- c. 20-25 mm Hg
- d. 35-40 mm Hg

**ANSWER:** c

66. Which vessel is the most commonly associated with massive hemorrhage following a tracheostomy?

- a. pulmonary artery
- b. subclavian artery
- c. carotid artery
- d. innominate artery

**ANSWER:** d