

Respiratory System

(A) Multiple choice questions (MCQs):

- 1) Which component of the inter-alveolar septa is destroyed by emphysema?
 - a. Reticular fibers
 - b. Collagen fibers
 - c. Elastic fibers
 - d. Capillary bed
 - e. Phagocytic cells
- 2) The olfactory mucosa differs from respiratory mucosa in having:
 - a. True cilia
 - b. Goblet cells within the lining epithelium
 - c. Pigmented mucosa
 - d. Thinner lining epithelium
 - e. Thicker basement membrane beneath the lining epithelium
- 3) BALT are:
 - a. Lymphatic nodules found in the bronchi
 - b. Small granule cells in respiratory epithelium
 - c. mucoserous glands found in the bronchioles
 - d. Alveolar macrophages
 - e. Congested blood vessels
- 4) Smokers suffer from disturbed ratio between:
 - a. Small granule cells & ciliated columnar cells
 - b. Goblet cells & brush cells
 - c. Ciliated cells & goblet cells
 - d. Goblet cells & small granule cells
 - e. Olfactory cells & supporting cells
- 5) Sympathomimetic drugs would be effective in relieving bronchial asthma as they:
 - a. Decrease secretion of mucoserous glands
 - b. Stimulate ciliary beating activity
 - c. Relax the smooth muscles of the bronchioles
 - d. Increase the diameter of the bronchi
 - e. Stimulate activity of Clara cells
- 6) Applied Inflammation of the nasal sinuses which may persist for long time is probably the result of defect in the function of:
 - a. Cilia
 - b. Smooth muscle contraction
 - c. Glandular secretion
 - d. Skeletal muscle contraction
 - e. Nerve supply
- 7) Neuroendocrine cells lining the respiratory epithelium:
 - a. Act as sensory receptors

- b. Have numerous apical mitochondria
- c. Have basal afferent nerve endings
- d. Regulate glandular secretion
- e. Act as stem cells for other cells

✓ 8) **The structural component which is not found in the bronchiole:**

- a. Goblet cells
- b. Smooth muscle
- c. Cilia
- d. Clara cells
- e. Elastic fibers

9) **Elastic cartilage provides structural support for the following respiratory airways:**

- a. Trachea
- b. Bronchi
- c. Bronchioles
- d. Larynx
- e. Nasal cavity

10) **Which of the following is made of elastic cartilage?**

- a. Thyroid cartilage
- b. C-shaped cartilage in trachea
- c. Cuneiform cartilage
- d. Cricoid cartilage
- e. Cartilage plates in bronchi

→ 11) **The first part of the respiratory tract which does NOT contain cilia is:**

- a. Terminal bronchiole
- b. Respiratory bronchiole
- c. Trachea
- d. Alveolar duct
- e. Bronchi

12) **The part of the airway which is located at the transition between the conducting and respiratory portions is:**

- a. Bronchioles
- b. Secondary bronchi
- c. Terminal bronchioles
- d. Respiratory bronchioles
- e. Primary bronchi

13) **The inferior nasal concha is covered with:**

- a. Pseudostratified columnar ciliated epithelium with goblet cells
- b. Pseudostratified columnar ciliated epithelium
- c. Stratified squamous epithelium keratinized
- d. Columnar ciliated epithelium with goblet cells
- e. Stratified squamous epithelium non-keratinized

14) **Primary bronchi are characterized by:**

- a. Highly folded mucosa
- b. Absent submucosa
- c. C-shaped cartilage
- d. Spirally arranged smooth muscles encircling the lumen
- e. No elastic membrane between mucosa and submucosa

→ 15) **What is the first portion of the respiratory tree where gas exchange can occur?**

- a. Alveolar duct
- b. Alveoli
- c. Alveolar sac
- d. Respiratory bronchiole
- e. Terminal bronchiole

Appl 16) **Respiratory distress syndrome is caused by deficiency of:**

- a. Goblet cells
- b. Pulmonary surfactant
- c. Elastic fibers
- d. Mucoserous glands
- e. Cilia

Appl 17) **The main etiological factor in nasal epistaxis is:**

- a. Decrease caliber of blood vessels
- b. Damage of olfactory fibers
- c. Injury to the nasal blood vessels
- d. Decrease arterial pressure in the nasal septum
- e. Deficiency of cytochrome P-450 enzymes in sER

18) **Pulmonary surfactant:**

- a. Produced by type II pneumocytes
- b. Produced by alveolar macrophages
- c. Increases surface tension of alveolar epithelium
- d. A component of the basement membrane of alveolar epithelium
- e. Produced by type I pneumocytes

✓ 19) **Bowman's glands are present in the lamina propria of:**

- a. Larynx
- b. Trachea
- c. Bronchi
- d. Olfactory mucosa
- e. Nasal cavity

✓ 20) **Clara cells are:**

- a. Dome shaped ciliated cells
- b. Present within the epithelium of intrapulmonary bronchi
- c. Act as stem cells for type I pneumocytes
- d. Their cytoplasm contains apical sER & basal rER
- e. Considered one of the neuroendocrine cells

✓ 21) **Which one of the following is NOT part of the blood gas barrier:**

- a. Cytoplasm of type I pneumocyte
- b. Cytoplasm of type II pneumocyte
- c. Basal lamina of endothelial cells
- d. Endothelium of continuous capillaries
- e. The film of pulmonary surfactant on the alveolar surface

22) **Which one of the following statements concerning respiratory bronchioles is true?**

- a. No gas exchange occurs in their walls
- b. Their walls contain a thin layer of smooth muscles
- c. They contain goblet cells in their lining epithelium
- d. They do not have alveoli in their walls
- e. They are lined by simple columnar ciliated epithelium

23) **Fetal lung is characterized by the following:**

- a. Its alveoli are separated by thin C.T. septa
- b. Its alveoli are lined by simple squamous epithelium

- c. It has no cartilage plates around bronchi
- d. Its pulmonary vessels are full of blood
- e. The whole lung floats on water

✓ 24) **A histological feature of the bronchiole is:**

- a. It has cartilage plates in its wall
- b. Its lining epithelium contains goblet cells
- c. It has well developed circular smooth muscles
- d. It has mucoserous glands in its wall
- e. It is lined with pseudostratified columnar ciliated epithelium

✓ 25) **Alveolar sacs are characterized by the following:**

- a. They are expanded irregular spaces at the distal ends of terminal bronchiole
- b. Lined by simple cubical epithelium
- c. They have smooth muscles in their walls
- d. Formed of group of alveoli with common central space
- e. Found at the distal ends of respiratory bronchiole

✓ 26) **Interalveolar septa:**

- a. Are delicate partitions separating alveoli
- b. Contain smooth muscle fibers
- c. Supported by cartilage plates
- d. Have no blood capillaries
- e. Contain Clara cells & CT cells

✓ 27) **Olfactory cells are:**

- a. Regenerative for all three cell types
- b. Provided with microvilli submerged in a fluid layer
- c. Bipolar nerve cells.
- d. Pyramidal in shape.
- e. Their cytoplasm contains yellow pigments

✓ 28) **Paranasal sinuses are lined by:**

- a. Simple squamous epithelium
- b. Simple columnar epithelium
- c. Stratified squamous epithelium
- d. Pseudostratified columnar ciliated epithelium with goblet cells
- e. Simple cubical epithelium

✓ 29) **Type I pneumocytes:**

- a. Are low cuboidal cells
- b. Have membrane limited multilamellar bodies
- c. Provide a thin membrane through which gaseous exchange occurs
- d. Secrete the pulmonary surfactant
- e. Can divide and act as stem cells

30) **Alveolar phagocytes:**

- a. Are present freely in alveolar air spaces but not in interalveolar septa
- b. Are rich in rER and mitochondria
- c. Arise mainly from neutrophils escaping from blood capillaries

- d. Are macrophages that enter C.T from the blood
- e. Can be stained with silver

(B) Problem Solving Questions:

1. **A 30 years old male, smoker , complaining of cough not responding to cough mixtures. The change that could be detected in epithelium of a specimen taken from the trachea is:**
 - a. Simple columnar non ciliated epithelium
 - b. Psudostratified columnar with no goblet cells
 - c. Pseudostratified columnar ciliated with numerous goblet cells
 - d. Pseudostratified columnar non ciliated
 - e. Stratified columnar ciliated epithelium
2. **A 32 years old male complaining of infertility with a history of chronic sinusitis and bronchitis. He may suffer from :**
 - a. Epistaxis
 - b. Bronchial asthma
 - c. Emphysema
 - d. Immotile cilia syndrome
 - e. Respiratory distress syndrome
3. **A 25 years old pregnant female had labour pains in 7th month of pregnancy. Predict the possible respiratory problem that the baby may suffer:**
 - a. Epistaxis.
 - b. Bronchial asthma.
 - c. Emphysema.
 - d. Immotile cilia syndrome.
 - e. Respiratory distress syndrome
4. **A 50 years old heavy smoker suffering from respiratory insufficiency was diagnosed as a case of emphysema, this may be due to:**
 - a. Metaplasia of respiratory epithelium
 - b. Destruction of alveolar wall
 - c. Impaired ciliary movement
 - d. Decrease secretion of surfactant
 - e. Decrease secretion of mucoserous glands
5. **A 40 years old patient complaining of asthmatic attacks and chronic cough , this condition may be due to:**
 - a. Destruction of elastic fibers
 - b. Destruction of cartilage plates
 - c. Stimulation of sympathetic nervous system
 - d. Inhibition of parasympathetic nervous system
 - e. Contraction of bronchiolar muscle fibers
6. **A male patient, aged 40, married for 5 years, and complains of primary infertility. Semen analysis showed immotile sperms. This may be due to lack of :**
 - a. Dynein
 - b. Actin
 - c. Myosin
 - d. Desmin
 - e. Vementin

(C) Match column (A) with column (B):

I- Column (A)	Column (B)
1. Elastic fibers	a. Warming of inspired air
2. Cartilage rings	b. Destruction of inhaled antigens
3. Blood vessels	c. Secrete solvent for odorous gases
4. BALT	d. Extensibility
5. Bowman's glands	e. Perception of olfactory impulses
	f. Structural support
	g. Increase force of airflow

II-Column (A)	Column(B)
1. Type I pneumocytes	a. Arise mainly from monocytes escaping from blood capillaries
2. Type II pneumocytes	b. Tall columnar cells containing yellow pigments
3. Clara cells	c. Simple squamous cells providing a very thin membrane for gaseous exchange
4. Alveolar phagocytes	d. Have apical microvilli and basal afferent nerve endings
5. Sustentacular cells of olfactory epithelium	e. Protect against development of emphysema
	f. Secrete pulmonary surfactant
	g. Have numerous granules with dense cores

III.Column (A)	Column(B)
1. Extrapulmonary bronchi	a. The region of transition between conducting&respiratory portions
2. Alveolar ducts	b. Expanded irregular spaces at the distal ends of alveolar ducts
3. Terminal bronchioles	c. Have the same structure as trachea
4. Intrapulmonary bronchi	d. Lined with simple cubical ciliated epithelium with Clara cells
5. Respiratory bronchioles	e. First part of respiratory tract without cilia
	f. Contain multiple irregular plates of hyaline cartilage in their adventitia
	g. Lined with simple columnar ciliated epithelium with Clara cells.

Answers

(A) Answer Key for MCQ Questions:

1	C	7	D	13	A	19	D	25	D
2	C	8	A	14	C	20	D	26	A
3	A	9	D	15	D	21	B	27	C
4	C	10	C	16	B	22	B	28	D
5	C	11	D	17	C	23	D	29	C
6	A	12	D	18	A	24	C	30	D

(B) Answer Key for Problem Solving Questions:

1	2	3	4	5	6
C	D	E	B	E	A

(C) Answer Key for Matching Questions:**Table I**

1	2	3	4	5
D	F	A	B	C

Table II

1	2	3	4	5
C	F	E	A	B

Table III

1	2	3	4	5
C	E	D	F	A