

# MEDZONE

PREPARED BY : MEDZONE TEAM

**20  
25**



# ANATOMY

# Mediated by MedZone Family



## **Thorax & Mediastinum**

### **1. The anterior mediastinum contains all, EXCEPT:**

- a- Sternopericardial ligaments.
- b- Remains of thymus.
- c- Phrenic nerve.
- d- Loose areolar tissue.
- e- 2 or 3 lymph glands.

### **2. Posterior mediastinum contains all, EXCEPT:**

- a- Descending thoracic aorta
- b- Azygos vein
- c- Esophagus
- d- Trachea
- e- Thoracic duct

### **3. The apex of fibrous pericardium is pierced by, EXCEPT:**

- a- Aorta.
- b- Pulmonary trunk
- c- Phrenic nerve
- d- Superior vena cava
- e- All the above

### **4. The anterior relations of descending aorta are:**

- a- Root of left lung
- b- Pericardium
- c- Esophagus
- d- Diaphragm
- e- All the above

### **5. All of the following statements concerning the mediastinum are correct except:**

- a- The mediastinum forms a partition between the two pleural cavities
- b- The mediastinal pleura demarcates the lateral boundaries of the mediastinum
- c- The heart occupies the middle mediastinum
- d- Should air enter the left pleural cavity, the structures forming the mediastinum are deflected to the right
- e- The anterior boundary of the mediastinum extends to a lower level

than the posterior boundary

**6. All of the following statements regarding the mechanics of inspiration are true except:**

- a- The diaphragm is the most important muscle of inspiration
- b- The suprapleural membrane can be raised
- c- The sternum moves anteriorly
- d- The ribs are raised superiorly
- e- The tone of the muscles of the anterior abdominal wall is diminished

**7. The following statements concerning the diaphragm are true except:**

- a- All the muscle of the diaphragm is supplied by the phrenic nerves
- b- On contraction, the diaphragm increases the intrathoracic pressure
- c- The right crus provides a sphincterlike mechanism for the esophagus
- d- On contraction, the diaphragm assists in the return of venous blood to the right atrium and of lymph to the thoracic duct
- e- When viewed from the front, the central tendon of the diaphragm lies behind the xiphisternal joint

**8. When aging, the following detrimental changes occur in the thorax except:**

- a- The ribs and costal cartilages become more rigid
- b- The elastic tissue in the lungs tends to degenerate
- c- The manubriosternal joint becomes more mobile
- d- The thoracic and abdominal muscles tend to atrophy
- e- The xiphoid process becomes ossified

**9. The following anatomic events occur at the level of the sternal angle (angle of Louis) except:**

- a- The right and left pulmonary arteries enter the lungs
- b- The right recurrent laryngeal nerve arises from the right vagus nerve
- c- The trachea bifurcates
- d- The ascending aorta becomes continuous with the arch of the aorta
- e- The second costal cartilages articulate with the sternum

**10. The following statements regarding structures in the intercostal spaces are correct except:**

- a- The anterior intercostal arteries of the upper six intercostal spaces are branches of the internal thoracic artery
- b- The intercostal nerves travel forward in an intercostal space between the internal intercostal and innermost intercostal muscles
- c- The intercostal blood vessels and nerves are posterior in the order of vein, nerve and artery from superior to inferior in a subcostal groove
- d- The lower five intercostal nerves supply sensory innervation to the

- skin of the lateral thoracic and anterior abdominal walls
- e- The posterior intercostal veins drain backward into the azygos and hemiazygos veins

**11. The following statements concerning the diaphragm are correct except:**

- a. The right crus provides a muscular sling around the esophagus and possibly prevents regurgitation of stomach contents into the esophagus
- b. On contraction, the diaphragm raises the intra-abdominal pressure and assists in the return of the venous blood to the right atrium of the heart
- c. The level of the diaphragm is higher in the recumbent position than in the standing position
- d. On contraction, the central tendon descends, reducing the intrathoracic pressure
- e. The esophagus passes through the diaphragm at the level of the eighth thoracic vertebra

**12. The following statements concerning the thoracic outlet (anatomic inlet) are true except:**

- a. The manubrium sterni forms the anterior border
- b. On each side, the lower trunk of the brachial plexus and the subclavian artery emerge through the inlet and pass laterally over the upper surface of the first rib
- c. The body of the seventh cervical vertebra forms the posterior boundary
- d. The first ribs form the lateral boundaries
- e. The esophagus and trachea pass through the outlet

**13. All of the following commonly occur on inhalation except:**

- a. The diaphragm descends
- b. The external intercostal muscles contract
- c. The abdominal muscles contract and push the abdominal viscera cranially
- d. The ribs are raised
- e. The vertical dimension of the thoracic cavity increases

**14. Hemiazygos vein receives the following veins:**

- a. Right superior intercostal
- b. Left superior intercostal
- c. Supreme (Highest) intercostal
- d. All of the above

e. None of the above

**15. On the plane between the sternal angle and lower border of T4 the:**

- a- First posterior intercostals vein opens into azygos vein
- b- Oesophagus deviates to the left of the midline
- c- Right main bronchus starts
- d- Right recurrent laryngeal nerve recurves around ligamentum arteriosum
- e- First costal cartilage joins the sternum

**16. The oesophagus:**

- a- Is entirely supplied by the inferior thyroid artery
- b- At cardiac orifice the epithelium is simple columnar
- c- Transverses the left crus
- d- Has a uniform lumen
- e- Has striated muscle in the lower part

**17. Regarding the thoracic wall:**

- a- The subcostal muscles are best developed in the upper part of the thorax
- b- The innermost intercostal muscles are often regarded as parts of the external intercostal muscles
- c- The anterior intercostal membrane is the membranous portion of the internal intercostal muscle
- d- The anterior intercostal arteries are branches of the internal thoracic arteries
- e- The intercostal nerves at the posterior rami of the 12 thoracic nerves

**18. The posterior mediastinum:**

- a- Extends from the 4<sup>th</sup> thoracic vertebra to the diaphragm
- b- Includes the descending thoracic aorta and azygos veins
- c- Includes the vagi and splanchnic nerves
- d- Includes the thoracic duct and oesophagus
- e- All of the above

**19. Regarding the skeleton of the thorax:**

- a- The floating ribs are ribs 8-12
- b- A typical rib consists of all of the following: head, neck, a shaft with its costal groove
- c- The most typical rib is rib 1
- d- The sternal angle marks the articulation of rib 3
- e- A line through the sternal angle bisects the disc between vertebra T2 and T3

**20. The bronchial arteries arise from:**

- a- Thoracic aorta
- b- Left subclavian
- c- Internal thoracic
- d- Arch of the aorta
- e- 3<sup>rd</sup> intercostals artery

**21. Which of the following statements concerning the thoracic wall is TRUE?**

- a- The intercostal muscles consist of four layers of muscles
- b- The first rib articulates with the sternal angle
- c- The sternum is made up of three bony parts: manubrium, body and xiphoid process
- d- The internal thoracic vessels lie between the internal intercostals and the external intercostals muscles
- e- The intercostal vein, artery and nerve run deep to the innermost intercostals muscles

**22. Which statement about the mediastinum is TRUE:**

- a- The mediastinum is the space above the heart
- b- The middle mediastinum contains the heart
- c- The superior mediastinum contains the descending aorta
- d- The inferior mediastinum contains the superior and inferior vena cave
- e- The posterior mediastinum contains the thymus gland, the sterno-pericardial ligaments and lymph gland

**23. Which statement about the thoracic diaphragm is FALSE:**

- a- The diaphragm receives blood supply from a branch of the internal thoracic artery
- b- The diaphragm receives blood supply from below via the inferior phrenic artery
- c- The diaphragm receives autonomic innervation from C6-7
- d- The diaphragm receives sensory innervation from the phrenic nerves
- e- The diaphragm consists of a central tendon and a muscular periphery

**24. In a patient with a tumor in superior mediastinum compressing the superior vena cava, all of the following veins would serve as alternate pathways for the blood to return to the right atrium, except:**

- a- Lateral thoracic vein
- b- Internal thoracic vein
- c- Hemiazygos vein
- d- Vertebral venous plexus

**25. In an x-ray photograph, one sees an abnormal shadow in the left**

**posterior mediastinum. It could arise from pathology of the:**

- a- Thymus
- b- Left bronchus
- c- Aortic arch
- d- Azygos vein
- e- Oesophagus

**26. The oesophageal opening transmits the following *except*:**

- a- Vagal trunks
- b- Oesophagus
- c- Lymphatics
- d- Oesophageal branches of left gastric artery
- e- Oesophageal branches of right gastric artery

**27. The diaphragm's blood supply is by following arteries:**

- a- Lower intercostal
- b- Internal thoracic
- c- Thoracic aorta
- d- Abdominal aorta
- e- All of the above

**28. Select the incorrect statement about the esophagus:**

- a- Traverses the left diaphragmatic crus
- b- Has striated muscle in its upper part
- c- Is supplied by inferior thyroid artery
- d- Is lined by stratified squamous epithelium

**29. Azygos vein receives the following veins *except*:**

- a- Bronchial veins
- b- Esophageal veins
- c- Left superior intercostals vein
- d- Lower posterior intercostals vein
- e- Hemiazygos vein

**30. The posterior intercostals arteries are branches of:**

- a- The internal thoracic artery
- b- The subclavian artery
- c- The aorta
- d- The highest intercostal artery
- e- The bronchi connective tissue and visceral pleura of the lungs are supplied by the bronchial arteries

**31. The anterior intercostal arteries are branches of the:**

- a- Posterior intercostals arteries
- b- Internal thoracic arteries

- c- Mediastinal arteries
- d- Highest intercostal
- e- Subcostal arteries

**32. Which of the following features is NOT part of a typical thoracic vertebra:**

- a- Foramen transversarium
- b- Transverse process
- c- Lamina
- d- Spinous process
- e- Heart-shaped body

**33. The internal thoracic artery gives the following branches except:**

- a- Pericardiophrenic
- b- 2<sup>nd</sup> anterior intercostal
- c- Superior epigastria
- d- Muculophrenic
- e- Bronchial artery

**34. Regarding the ligaments of the vertebral column, which of the following is false?**

- a- Interspinous ligaments connect adjacent spinous processes
- b- Ligamenta flava connect the transverse processes of adjacent vertebra
- c- The anterior longitudinal ligament interconnects vertebral bodies
- d- The intervertebral disc is filled with fibroglutinous pulp, the nucleus pulposus
- e- The ligamentum nuchae attaches to spinous processes of cervical vertebrae

**35. Which of the following is true of the azygos vein?**

- a- It lies close to the intercostal veins but does not connect directly with them
- b- It lies on the left side of the thorax
- c- It is normally part of the portal system of venous drainage
- d- It empties into the superior vena cava
- e- It is typically smaller than the hemiazygos vein

**36. Which of the following statements about the thoracic diaphragm is true?**

- a- The esophagus enters the abdominal cavity posterior to the median arcuate ligament
- b- The esophageal hiatus is at vertebral level T10
- c- The diaphragm relaxes during inspiration

- d- The left crus of the diaphragm is longer than the right crus
- e- The left dome of the diaphragm is usually higher than the right dome

**37. Which of the following is false of the circulation of the thoracic wall:**

- a- Blood supply to the upper anterior thoracic wall comes from the thoracoacromial artery
- b- Blood from the anteriormost aspect of the thoracic wall drains into the internal thoracic vein
- c- Unlike the intercostals arteries, posterior intercostals veins do not anastomose with the anterior intercostals veins
- d- The posterior intercostal arteries are branches of the descending aorta
- e- The internal thoracic artery branches into the musculophrenic and the superior epigastric as it approaches the diaphragm

**38. Which statement is true?**

- a- The esophagus pierces the diaphragm at the level of T8
- b- The diaphragm attaches to the posterior aspect of the sternum at the level of the sternal angle
- c- The central tendon of the diaphragm is fused with the serous pericardium just beneath the heart
- d- When the diaphragm contracts it moves inferiorly, decreasing intrathoracic pressure, resulting in air being taken into the lungs
- e- The diaphragm, by changing pressure in the thorax and abdomen prevents blood from returning to the heart

**39. Which of the following structures pass behind the medial arcuate ligament of the diaphragm?**

- a- Subcostal nerve
- b- Right phrenic nerve
- c- Sympathetic chain
- d- Epigastric artery
- e- Vagal trunks

**40. Which of the following is not at the same level as the sternal angle?**

- a- The disc between vertebra T4 and T5
- b- The attachment of the costal cartilage of rib 2
- c- The horizontal fissure of the right lung
- d- The bifurcation of the trachea into primary bronchi
- e- The arch of the aorta

**41. Which one of the following is found only in the superior mediastinum:**

- a- Trachea.
- b- Vagus nerve.

- c- Thoracic duct.
- d- Descending aorta.
- e- Splanchnic nerves.

**42. Which one of the following is found both in the superior and posterior mediastina:**

- a- Heart.
- b- Trachea.
- c- Oesophagus.
- d- Phrenic nerve.
- e- Pulmonary trunk.

**43. Which one of the following is located in the anterior mediastinum:**

- a- Thymus.
- b- Oesophagus.
- c- Arch of aorta.
- d- Descending aorta.
- e- Right atrium of the heart.

**44. The thymus in the thorax is related anteriorly to the:**

- a- Pleura.
- b- Arch of the aorta.
- c- Superior vena cava.
- d- Internal thoracic artery.
- e- Left brachiocephalic vein.

**45. The left brachiocephalic vein is located posterior to the :**

- a- Thymus.
- b- Left subclavian artery.
- c- Brachiocephalic artery.
- d- Left internal thoracic artery.
- e- Left common carotid artery.

**46. The hemiazygos vein:**

- a- Joins the azygos vein at level of T4.
- b- Crosses anterior to the thoracic duct.
- c- Ascends posterior to the thoracic aorta.
- d- Runs to the right side of the vertebral column.
- e- Is the continuation of the right subcostal vein.

**47. The azygos vein:**

- a- Drains into the accessory hemiazygos vein.
- b- Is the continuation of the left subcostal vein.
- c- Communicates with the vertebral venous plexuses.
- d- Passes close to the left side of the vertebral column.

e- Runs through the oesophageal opening of the diaphragm.

**48. The vagus nerve:**

- a- Runs downwards anterior to the roots of the lungs.
- b- Passes through the aortic opening of the diaphragm.
- c- Arises from the thoracic segments of the spinal cord.
- d- Gives parasympathetic supply to the thoracic viscera.
- e- Crosses anterior to the brachiocephalic vein in the left side.

**49. The left recurrent laryngeal nerve hooks inferiorly around the:**

- a- The azygos vein.
- b- The arch of the aorta.
- c- The left subclavian vein.
- d- The left subclavian artery.
- e- The left brachiocephalic vein.

**50. The right phrenic nerve:**

- a- Arises from T3, 4 and 5.
- b- Runs close to the apex of the heart.
- c- Descends close to the superior vena cava.
- d- Descends posterior to the root of the lung.
- e- Passes through the aortic opening of the diaphragm

**51. The oesophagus:**

- a- Begins at the level of C3.
- b- Is entirely made of smooth muscles.
- c- Passes posterior to the descending aorta.
- d- Pierces the diaphragm at the level of T12.
- e- Passes through the posterior mediastinum.

**52. The oesophagus is constricted at the level of T10 by the effect of:**

- a- Left crus.
- b- Right crus.
- c- Arch of the aorta.
- d- Arch of the azygos.
- e- Left principle bronchus

**53. Which one of the following muscles is attached to the posterior surface of the manubrium?**

- a- Thyrohyoid.
- b- Sternohyoid.
- c- Teres minor.
- d- Pectoralis major.
- e- Sternocleidomastoid.

**54. Which one of the following is located posterior to the lower-left**

**quadrant of the manubrium:**

- a- The oesophagus.
- b- The arch of the aorta.
- c- The superior vena cava.
- d- Left brachiocephalic vein.
- e- Right brachiocephalic vein.

**55. The sternal angle (angle of Louis) is located at the level of the lower border of the following thoracic vertebra:**

- a- 2 nd .
- b- 3 rd .
- c- 4 th .
- d- 5 th .
- e- 6 th .

**56. Which one of the following costal cartilages forms a synovial joint with the body of the sternum:**

- a- 1 st .
- b- 2 nd .
- c- 8 th .
- d- 9 th .
- e- 10th .

**57. Which one of the following muscles is attached along the anterior surface of the body of sternum:**

- a- Sternocostalis.
- b- Internal oblique.
- c- Pectoralis major.
- d- Rectus abdominis.
- e- Transversus abdominis.

**58. The posterior intercostal arteries are branches of:**

- a- The thoracic aorta.
- b- The subclavian artery.
- c- The inferior thyroid artery.
- d- The internal thoracic artery.
- e- The superior epigastric artery.

**59. The 9th anterior intercostal artery is a branch from:**

- a- The subcostal artery.
- b- The subclavian artery.
- c- The musculophrenic artery.
- d- The internal thoracic artery.
- e- The superior intercostal artery.

**60. The 1st posterior intercostal artery is a branch from:**

- a- The subcostal artery.
- b- The costocervical trunk.
- c- The common carotid artery.
- d- The musculophrenic artery.
- e- The internal thoracic artery.

**61. The Left superior intercostal vein drains mainly into the:**

- a- Azygos vein.
- b- Hemiazygos vein.
- c- Left subclavian vein.
- d- Left brachiocephalic vein.
- e- Accessory hemiazygos vein.

**62. The diaphragm:**

- a- Is made of smooth muscle.
- b- Is the chief muscle for expiration.
- c- Raises the intra-thoracic pressure when it is relaxed.
- d- Is innervated by T3, 4 and 5 segments of the spinal cord.
- e- Expands the intra-abdominal cavity when it is contracted.

**63. The oesophageal hiatus in the diaphragm transmits:**

- a- The azygos veins.
- b- The thoracic duct.
- c- The sympathetic trunks.
- d- Branches of the left gastric vessels.
- e- Branches of the right phrenic nerve.

**64. The aortic opening in the diaphragm is located at the level of the thoracic vertebra:**

- a- 4 th .
- b- 6 th .
- c- 8 th .
- d- 10th .
- e- 12th .

**65. The vertebral column does all of the following EXCEPT**

- a- protect the spinal cord and spinal nerves
- b- support the weight of the body
- c- provide a pivot for the head
- d- play an important role in posture and locomotion
- e- form the main part of the appendicular skeleton

**66. Which of the following is NOT a distinctive characteristic of a typical cervical vertebra?**

- a- The body is small and wider from side to side than anteroposteriorly.
- b- The vertebral foramen is large and triangular.
- c- The transverse processes contain transverse foramina.
- d- The articular processes contain superior facets directed inferoanteriorly.
- e- The spinous processes are short and bifid.

**67. Which of the following is NOT a distinctive characteristic of a typical thoracic vertebra?**

- a- The body is heart-shaped.
- b- The vertebral foramen is triangular and larger than in cervical and lumbar vertebrae.
- c- The transverse processes are long and strong and extend posterolaterally.
- d- The articular processes contain superior facets directed posteriorly and slightly laterally.
- e- The spinous processes are long and slope posteroinferiorly.

**68. Which of the following is a distinctive characteristic of a typical lumbar vertebra?**

- a- The body is massive and kidney-shaped when viewed superiorly.
- b- The vertebral foramen is circular and smaller than those of cervical and lumbar vertebrae.
- c- The transverse processes are long and slender and contain Mammillary processes.
- d- The articular processes contain accessory processes.
- e- The spinous processes are long and slope posteroinferiorly

**69. The articular part of a rib tubercle articulates with which of the following structures?**

- a- body of the vertebra
- b- costal cartilage
- c- adjacent rib
- d- sternum
- e- transverse process

**70. Which of the following structures is located in the middle mediastinum?**

- a- thoracic duct
- b- lungs
- c- esophagus
- d- heart

**71. The musculophrenic arteries give rise to which of the following?**

- a- anterior intercostal arteries for intercostal spaces 7–9
- b- posterior intercostals arteries for intercostal spaces 3–11
- c- subcostal artery
- d- inferior phrenic artery
- e- lumbar arteries

**72. Which of the following is NOT contained in the superior mediastinum?**

- a- thymus
- b- great vessels and their branches
- c- azygos and hemiazygos veins
- d- trachea
- e- esophagus

**73. The posterior mediastinum does NOT include which of the following?**

- a- prevertebral muscles
- b- thoracic aorta
- c- thoracic duct
- d- thoracic sympathetic trunks
- e- thoracic splanchnic nerves

**74. The hemiazygos vein does NOT receive blood from which of the following?**

- a- left subcostal vein
- b- ascending lumbar veins
- c- inferior three posterior intercostal veins
- d- superior phrenic veins
- e- small mediastinal veins

**75. The accessory hemiazygos vein parallels the vertebral column along which vertebral levels?**

- a- T1–4
- b- T2–6
- c- T5–8
- d- T8–12
- e- L1–4.

**76. Which of the following structures passes through the central tendon of the diaphragm?**

- a- Vagus nerve
- b- Inferior vena cava
- c- Abdominal aorta
- d- Thoracic duct
- e- Esophagus

**77. The diaphragm is innervated by which nerve?**

- a- Phrenic nerve
- b- Vagus nerve
- c- Intercostal nerves
- d- Pudendal nerve
- e- Sciatic nerve

**78. At which vertebral level does the diaphragm typically level with the xiphoid process?**

- a- T6
- b- T9
- c- T10
- d- T12
- e- L1

**79. Which of the following openings of the diaphragm allows passage of the esophagus?**

- a- Aortic hiatus
- b- Caval opening
- c- Esophageal hiatus
- d- Sternocostal opening
- e- Lumbar opening

**80. The right crus of the diaphragm primarily originates from which vertebrae?**

- a- L1–L2–L3
- b- L2–L3
- c- L3–L4
- d- T12
- e- L4–L5

**81. Which part of the diaphragm receives blood supply from the superior phrenic arteries?**

- a- Central part
- b- Right and left crus
- c- Periphery
- d- Parietal pleura
- e- Aortic hiatus

**82. Which of the following muscles is the main muscle of inspiration during quiet breathing?**

- a- External intercostals
- b- Sternocleidomastoid
- c- Diaphragm
- d- Scalene muscles

e- Trapezius

**83. The mediastinum is divided into which two regions?**

- a- Anterior and posterior
- b- Superior and inferior
- c- Left and right
- d- Lateral and medial
- e- Cranial and caudal

**84. Which of the following structures is found in the superior mediastinum?**

- a- Aortic arch
- b- Pulmonary arteries
- c- Right atrium
- d- Diaphragm
- e- Thoracic duct

**85. Which of the following is located in the anterior mediastinum?**

- a- Heart
- b- Esophagus
- c- Thymus gland
- d- Thoracic duct
- e- Aortic arch

**86. The thoracic duct drains into which venous structure?**

- a- Right brachiocephalic vein
- b- Left brachiocephalic vein
- c- Inferior vena cava
- d- Subclavian vein
- e- Internal jugular vein

**87. The azygos vein drains directly into which of the following?**

- a- Inferior vena cava
- b- Left atrium
- c- Right atrium
- d- Superior vena cava
- e- Internal jugular vein

**88. The hemiazygos vein typically drains the blood from which region?**

- a- Right thoracic wall
- b- Left thoracic wall
- c- Left lower abdomen
- d- Left renal vein
- e- Right cervical region

**89. The azygos vein is formed by the junction of which two veins?**

- a- Right subclavian and internal jugular
- b- Right lumbar and right renal
- c- Right ascending lumbar and right subcostal veins
- d- Left renal and left iliac veins
- e- Left subclavian and left internal jugular

**90. The azygos system is responsible for venous drainage from which of the following areas?**

- a- Thoracic and abdominal walls
- b- Lower limbs
- c- Head and neck
- d- Kidneys
- e- Pelvic organs

**91. Which of the following veins drains the inferior three posterior intercostal veins?**

- a- Hemiazygos vein
- b- Accessory hemiazygos vein
- c- Internal thoracic vein
- d- Subclavian vein
- e- Superior vena cava

**92. The accessory hemiazygos vein is located at which level of the vertebral column?**

- a- T1–T4
- b- T2–T6
- c- T5–T8
- d- T6–T10

e- T9–T12

**93. The inferior vena cava passes through the diaphragm at the level of which vertebra?**

- a- T8
- b- T10
- c- T12
- d- L1
- e- L3

**94. Which of the following nerves passes through the aortic hiatus of the diaphragm?**

- a- Phrenic nerve
- b- Vagus nerve
- c- Sympathetic trunk
- d- Splanchnic nerves
- e- Subcostal nerve

**95. The sympathetic trunk is located in which mediastinal region?**

- a- Anterior mediastinum
- b- Middle mediastinum
- c- Posterior mediastinum
- d- Superior mediastinum
- e- Left side of the mediastinum

**96. The thoracic aorta passes through the diaphragm at which vertebral level?**

- a- T10
- b- T12
- c- L1
- d- T8
- e- L2

**97. The left subclavian artery gives rise to which of the following branches in the mediastinum?**

- a- Brachiocephalic trunk
- b- Left common carotid artery

- c- Internal thoracic artery
- d- Vertebral artery
- e- Thoracic duct

**98. The pericardium is supplied by which of the following arteries?**

- a- Internal thoracic artery
- b- Subclavian artery
- c- Thoracic aorta
- d- Inferior phrenic artery
- e- Left coronary artery

**99. Which of the following arteries supply the diaphragm?**

- a- Subclavian artery
- b- Internal thoracic artery
- c- Superior and inferior phrenic arteries
- d- Renal arteries
- e- Abdominal aorta

**100. The mediastinal surface of the lung is primarily in contact with which of the following structures?**

- a- Aortic arch
- b- Heart
- c- Diaphragm
- d- Thoracic duct
- e- Esophagus

**101. The azygos vein ascends along the right side of the vertebral column, passing posterior to which structure?**

- a- Thoracic duct
- b- Aortic arch
- c- Pulmonary trunk
- d- Heart
- e- Esophagus

**102. Which of the following structures is located anterior to the esophagus in the posterior mediastinum?**

- a- Aorta

- b- Thoracic duct
- c- Trachea
- d- Pulmonary artery
- e- Superior vena cava

**103. The pleura of the lungs is supplied by which arteries?**

- a- Internal thoracic arteries
- b- Thoracic aorta
- c- Subclavian arteries
- d- Left and right bronchial arteries
- e- Pericardiophrenic arteries

**104. The azygos vein crosses to the right side of the vertebral column at which vertebral level?**

- a- T4
- b- T7
- c- T10
- d- T12
- e- L1

**105. The subcostal nerve passes between which two structures?**

- a- Diaphragm and ribs
- b- Internal and external intercostals
- c- External intercostals and serratus anterior
- d- Internal intercostals and innermost intercostals
- e- Parietal pleura and diaphragm

**106. The diaphragm's central tendon is directly attached to which of the following structures?**

- a- Xiphoid process
- b- Inferior vena cava
- c- Abdominal aorta
- d- Rib cage
- e- Vertebral column

**107. Which of the following structures is located in the posterior mediastinum?**

- a- Esophagus
- b- Heart
- c- Thymus
- d- Aortic arch
- e- Subclavian veins

**108. The accessory hemiazygos vein typically drains into which vein?**

- a- Inferior vena cava
- b- Hemiazygos vein
- c- Left brachiocephalic vein
- d- Azygos vein
- e- Thoracic duct

**109. During quiet inspiration, the diaphragm:**

- a- Contracts and moves upward
- b- Relaxes and moves downward
- c- Contracts and moves downward
- d- Contracts and remains in place
- e- Relaxes and moves upward

**110. Which of the following muscles primarily assists in forced expiration by depressing the diaphragm?**

- a- External intercostals
- b- Internal intercostals
- c- Rectus abdominis
- d- Diaphragm
- e- Trapezius

**111. The diaphragm is responsible for which of the following actions during normal breathing?**

- a- Increasing thoracic pressure
- b- Decreasing thoracic volume
- c- Reducing abdominal pressure
- d- Increasing abdominal pressure
- e- Moving downward during inspiration

**112. Which of the following is true about the movement of the diaphragm during expiration?**

- a- It moves downward
- b- It is actively contracted
- c- It moves upward due to relaxation
- d- It flattens to assist in exhalation
- e- It has no role in expiration

**113. The diaphragm contributes to the creation of which of the following pressures during inspiration?**

- a- Positive thoracic pressure
- b- Negative thoracic pressure
- c- Positive intra-abdominal pressure
- d- Negative intra-abdominal pressure
- e- Intrapulmonary pressure

**114. During forced inspiration, the diaphragm:**

- a- Contracts and moves upward
- b- Remains at rest
- c- Relaxes and moves downward
- d- Contracts and moves downward
- e- Moves laterally

**115. The diaphragm helps in which of the following functions during normal breathing?**

- a- Expanding the abdominal cavity
- b- Maintaining intra-abdominal pressure
- c- Compressing the thoracic cavity
- d- Pulling air into the lungs by downward movement
- e- Preventing reflux from the stomach

**116. The diaphragm's action during deep breathing primarily involves:**

- a- Contraction and upward movement
- b- Contraction and downward movement
- c- Relaxation and upward movement
- d- Relaxation and downward movement

## e- Lateral expansion

**117. Which of the following changes occurs in the diaphragm during exhalation at rest?**

- a- It contracts downward
- b- It relaxes and rises
- c- It moves upward due to contraction
- d- It stays in a fixed position
- e- It flattens

**118. The action of the diaphragm increases the volume of the thoracic cavity during inspiration by:**

- a- Moving upward
- b- Expanding the rib cage laterally
- c- Moving downward
- d- Contracting to decrease thoracic volume
- e- Changing the shape of the lungs

**119. A 58-year-old male presents with difficulty breathing, especially when lying flat. On examination, you notice paradoxical breathing, where the abdomen moves inward during inspiration. He has a history of surgery for a thoracic aneurysm.**

**❖ What is the most likely cause of the patient's symptoms, and how does diaphragmatic paralysis affect breathing?**

- a- Heart failure
- b- Diaphragmatic hernia
- c- Diaphragmatic paralysis due to phrenic nerve damage
- d- Pulmonary embolism
- e- Pneumothorax

**120. A newborn is diagnosed with a diaphragmatic hernia after presenting with severe respiratory distress shortly after birth. Imaging shows herniation of abdominal organs into the thoracic cavity.**

**❖ How does a diaphragmatic hernia affect respiratory function, and what are the potential complications?**

- a- Causes airway obstruction and increased lung compliance

- b- Compresses the lungs and leads to hypoxia, impairing lung development
- c- Decreases the movement of the diaphragm and causes hyperinflation of the lungs
- d- Reduces venous return, leading to pulmonary edema
- e- Increases intra-abdominal pressure, improving lung expansion

**121. A 45-year-old woman presents with shortness of breath, especially on exertion, after undergoing a left-sided neck surgery. A chest X-ray reveals an elevated left hemidiaphragm.**

- **What is the most likely diagnosis, and what is the role of the phrenic nerve in diaphragm function?**
  - a- Pulmonary fibrosis, which limits lung expansion
  - b- Phrenic nerve injury, causing diaphragmatic paralysis and elevation of the hemidiaphragm
  - c- Heart failure, leading to left-sided fluid accumulation and diaphragmatic elevation
  - d- Diaphragmatic hernia, causing abdominal organs to push into the thoracic cavity
  - e- Pneumothorax, leading to collapse of the left lung

**122. A 60-year-old man with chronic liver disease presents with abdominal distension and difficulty breathing. On examination, his diaphragm movement is restricted.**

- **How does ascites affect diaphragm movement, and what are the implications for respiratory function?**
  - a- It allows for increased diaphragmatic movement and improved lung expansion
  - b- It causes reduced abdominal pressure, making it easier to breathe
  - c- It increases intra-abdominal pressure, restricting diaphragmatic movement and impairing lung expansion
  - d- It causes pleural effusion, which leads to restriction of the thoracic cavity
  - e- It decreases intra-abdominal pressure, leading to improved diaphragm movement

**123. A 32-year-old female with a BMI of 38 presents with shortness of breath on exertion. She reports difficulty lying flat due to discomfort in her chest.**

• **How does obesity affect diaphragmatic movement and breathing?**

- a- It reduces intra-abdominal pressure, allowing the diaphragm to move freely
- b- It increases intra-abdominal pressure, restricting the downward movement of the diaphragm
- c- It causes pulmonary hyperinflation, leading to difficulty exhaling
- d- It leads to increased lung volume, improving diaphragm function
- e- It results in decreased thoracic pressure, improving ventilation

**124. A 30-year-old pregnant woman at 36 weeks gestation presents with difficulty breathing, particularly during physical activity. She has a history of normal pregnancies, but this one has been complicated by excessive weight gain.**

➤ **How does pregnancy affect diaphragmatic movement and respiratory function?**

- a- Pregnancy increases abdominal pressure, restricting diaphragmatic movement and causing shortness of breath
- b- Pregnancy reduces abdominal pressure, allowing for better diaphragmatic expansion
- c- Pregnancy increases diaphragmatic movement due to elevated progesterone levels
- d- Pregnancy decreases thoracic volume, which improves lung function
- e- Pregnancy has no effect on diaphragmatic movement

**125. A 68-year-old male who recently suffered a stroke presents with difficulty breathing and a noticeable difficulty in controlling his breathing pattern. A chest X-ray reveals an elevated right hemidiaphragm. The patient has no history of trauma or surgery.**

➤ **What is the likely cause of the elevated diaphragm, and how does stroke affect diaphragmatic function?**

- a- Stroke affecting the phrenic nerve nuclei in the brainstem, leading to diaphragmatic paralysis

- b- Diaphragmatic hernia caused by increased intra-abdominal pressure
- c- Diaphragmatic dysfunction due to muscle weakness caused by the stroke
- d- Pneumothorax affecting lung expansion and elevating the diaphragm
- e- Pulmonary embolism leading to diaphragmatic constriction

**126. A 60-year-old male with a 30-year history of smoking presents with progressive shortness of breath, especially on exertion. He has been diagnosed with COPD. On examination, his chest appears barrel-shaped, and he demonstrates an increased effort to breathe.**

**How does COPD affect diaphragmatic movement and function?**

- a- COPD increases diaphragmatic efficiency and improves lung ventilation
- b- COPD leads to hyperinflation of the lungs, which flattens the diaphragm and reduces its efficiency
- c- COPD strengthens the diaphragm muscles, leading to better respiratory function
- d- COPD causes diaphragm paralysis due to damage to the phrenic nerve
- e- COPD has no effect on diaphragmatic movement

**127. A 70-year-old male with a history of chronic heart failure presents with progressive shortness of breath, orthopnea, and fatigue. Physical examination shows bilateral lower extremity edema. A chest X-ray reveals cardiomegaly and pleural effusion.**

**How does heart failure lead to diaphragmatic dysfunction?**

- a. Increased thoracic pressure due to pleural effusion restricts diaphragmatic movement
- b. Diaphragmatic paralysis due to right ventricular dysfunction
- c. Diaphragmatic hypertrophy caused by increased systemic pressure
- d. Hyperinflation of the lungs causing the diaphragm to move excessively
- e. Decreased blood flow to the diaphragm causing muscle weakness

**128. A 55-year-old female presents with progressive dyspnea and an elevated right hemidiaphragm on chest X-ray. She has a history of lung cancer, and recent imaging reveals a tumor located near the right lung apex.**

➤ **What is the most likely cause of the diaphragmatic paralysis, and how does a lung tumor affect the diaphragm?**

- a. Tumor invasion of the diaphragm directly causing paralysis
- b. Tumor compression of the phrenic nerve, leading to diaphragmatic paralysis
- c. Tumor-induced pleural effusion causing restriction of diaphragm movement
- d. Tumor causing pulmonary hyperinflation, leading to diaphragm flattening
- e. Tumor metastasis to the diaphragm causing muscle hypertrophy

## Lower respiratory tract

**1- The cardiac impression of the left lung is formed mainly by:**

- a. Pulmonary veins
- b. Pulmonary trunk
- c. Left ventricle.
- d. Right atrium

**2- One of the followings is a pleural recess:**

- a. Costotransverse recess,
- b. Costovertebral recess
- c. Costoclavicular recess
- d. Costmediastinal recess

**3- Which vessel passes directly behind the hilum of left lung:**

- a. azygos vein
- b. hemi-azygous vein
- c. descending thoracic aorta.
- d. internal thoracic artery.

**4- The surface markings of the pleurae, select the true statement**

- a. It does not extend above the clavicle.
- b. The anterior borders are similar on both sides.
- c. The inferior border extend to the 10th rib in the midaxillary line.
- d. The inferior border extend to the 6th rib in the midclavicular line

**5- With respect to the root of the left lung, one is incorrect:**

- a. the left pulmonary artery lies above and in front of the main bronchus.
- b. the superior pulmonary vein is most anterior.
- c. the left lung receives 2 bronchial arteries along the posterior wall of the bronchi.
- d. the root related above to the arch of azygos vein.

**6- Which structure passes directly behind the hilum of the right lung?**

- a. Right phrenic nerve.
- b. Right vagus nerve.
- c. Internal mammary artery.
- d. Hemi-azygous vein.

**7- What impression cannot be found on the mediastinal surface of the right lung:**

- a. The groove for inferior vena cava,
- b. The groove for the left subclavian artery
- c. The groove of the esophagus

d. The groove for superior vena cava

**8- The lower margin of the lung cuts the following rib in the midaxillary line:**

- a. 6 th
- b. 8 th
- c. 10th
- d. 12th

**9- A 51-year-old male was admitted to the hospital with severe dyspnea. Radiographic examination revealed a tension pneumothorax. Adequate local anesthesia of the chest wall prior to insertion of a chest tube was necessary for pain control.**

**Which of the following layers is the deepest that must be infiltrated with the local anesthetic to achieve adequate anesthesia?**

- a. Endothoracic fascia
- b. Intercostal muscles
- c. Parietal pleura
- d. Visceral pleura

**10- A 29-year-old male with a complaint of sharp, localized pain over the thoracic wall was diagnosed with pleural effusion. A chest tube was inserted to drain the effusion through an intercostal space. At which of the following locations was the chest tube most likely to be inserted?**

- a. Superior to the upper border of the rib.
- b. Inferior to the lower border of the rib.
- c. At the middle of the intercostal space.
- d. Between the internal and external intercostal muscles.

**11- Which of the following are the bronchopulmonary segments of the lingula of the left lung?**

- a. Anterior and posterior.
- b. Medial and lateral.
- c. Superior and inferior.
- d. Anterior basal and posterior basal.

**12- Regarding the right lung; indicate the incorrect statement:**

- a. It is larger than the left lung.
- b. Its horizontal fissure runs at the level of the 6<sup>th</sup> costal cartilage.
- c. Its upper lobe has three bronchopulmonary segments.
- d. Its anterior border is vertical down to the 6<sup>th</sup> costal cartilage.

**13- Indicate the wrong answer concerning the suprapleural membrane:**

- a. It is a thick membrane that covers the cervical pleura.

- b. It is attached to the inner border of the first rib and first costal cartilage.
- c. It is attached posteriorly to the transverse process of the 6 th cervical vertebrae.
- d. It protects the cervical pleura and the apex of the lung.

**14- Regarding the pleura, select the wrong statement:**

- a. The costodiaphragmatic recess is occupied by the inferior border of the lung during full inspiration.
- b. The visceral pleura extend into the fissures of the lungs.
- c. The lymphatics draining the visceral pleura pass to the bronchopulmonary lymph nodes.
- d. The visceral pleura is innervated by the phrenic and the lower five intercostal nerves.

**15- one of the following statements regarding right lung is wrong :**

- a. The right lung has horizontal and oblique fissures.
- b. The right phrenic nerve passes anterior to its root.
- c. The right vagus nerve passes anterior to its root.
- d. The azygos vein arches above its root.

**16- Regarding the blood supply of the lungs; mark the correct statement:**

- a. Bronchial arteries supply oxygenated blood to the lungs tissues.
- b. Pulmonary veins carry deoxygenated blood to them.
- c. Pulmonary arteries carry oxygenated blood for the lung.
- d. Alveoli are surrounded by a network of capillaries from bronchial arteries.

**17- The mediastinal surface of the left lung shows in impression for one of the following structures:**

- a. SVC.
- b. IVC.
- c. Arch of aorta.
- d. Ascending aorta.

**18- Regarding the lungs; indicate the wrong answer:**

- a. The bronchial arteries supply nutrition to the lung tissue.
- b. The superior lobar branch of the pulmonary artery usually arises before the hilum in the right lung.
- c. The 'epi-arterial' bronchus of the right lung supplies both the upper and middle lobes.
- d. The upper lobe of the right lung has three bronchopulmonary segments.

**19- Regarding the lungs; mark the wrong statement:**

- a. The right lung is shorter and broader than the left.
- b. The left lung possesses two lobes.
- c. The right lung has a cardiac notch.
- d. The left lung is related to the descending thoracic aorta.

**20- Concerning pleurae, select the wrong statement:**

- a. Parietal pleura is supplied by Intercostal and phrenic nerves.
- b. Pleural cavity is the space between visceral and parietal pleurae.
- c. Pulmonary ligament allows for distension of pulmonary veins.
- d. Inferior border of pleura reaches the 8th rib in midaxillary line.

**21- One of the following statements regarding lungs is incorrect:**

- a. The ascending aorta makes an impression on the mediastinal surface of the left lung.
- b. The trachea bifurcates at the level of the sternal angle into two bronchi.
- c. Each lung receives non-oxygenated blood through a pulmonary artery.
- d. The horizontal fissure of the right lung lies at the level of the 4th costal cartilage.

**22- Regarding the root of the right lung; choose the incorrect statement:**

- a. The right phrenic nerve passes anterior to the lung root.
- b. The azygos vein arches over superior margin of the lung root.
- c. The right pulmonary artery lies posterior to the principal bronchus.
- d. The right vagus nerve passes posterior to the lung root.

**23- One of the following statements is incorrect regarding the right lung:**

- a. It possesses a horizontal and an oblique fissure.
- b. Its covering of visceral pleura is sensitive to pain and temperature.
- c. The lymph from the substance of the lung reaches the hilum by the superficial and deep lymphatic plexuses.
- d. The pulmonary ligament permits the vessels and nerves of the lung root to move during the movements of respiration.

**24- Regarding the bronchopulmonary segments:**

- a. They are supplied by end arteries.
- b. There are eight bronchopulmonary segments in each lung.
- c. Each segment is pyramidal in shape with the base towards the hilum.
- d. Each segment is supplied by a lobar bronchus.

**25- Concerning the lungs, choose the wrong answer:**

- a. Its apex projects into the neck.

- b. Its costal surface is convex.
- c. Its mediastinal surface is concave.
- d. Its anterior border is thick and rounded.

**26- Regarding the right lung; mark the incorrect answer:**

- a. It is larger than the left one.
- b. It has 8 bronchopulmonary segments.
- c. Its middle lobe has two bronchopulmonary segments.
- d. Its anterior border is vertical down to the 6th costal cartilage.

**27- Regarding the suprapleural membrane; select the wrong answer:**

- a. It is attached to the inner border of the first rib.
- b. Its apex is attached to the transverse process of the 7th cervical vertebra.
- c. It protects the cervical pleura.
- d. It moves upwards to increase the vertical diameter of the thorax.

**28- Concerning the line of reflection of the left parietal pleura; choose the wrong statement:**

- a. Anterior border is a line extend from the left sternoclavicular junction to the middle line at the sternal angle then vertically in the middle line till the 4<sup>th</sup> costal cartilage where it follow the cardiac notch.
- b. Cardiac notch is drawn between the 4<sup>th</sup> and 8<sup>th</sup> costal cartilages for 2½ inches.
- c. The inferior border (costodiaphragmatic recess) is drawn by a line From xiphisternal angle to 8<sup>TH</sup> rib at midclavicular line, 10thrib at midaxillary line and 12th rib at Sacrospinalis muscle.
- d. Posterior border; line between 12th thoracic spine and cervical pleura.

**29- Mark the incorrect statement concerning the pleural cavity:**

- a. It is a potential space.
- b. Filled with a film of serous fluid.
- c. Allow smooth surfaces of the pleura for free movements during respiration.
- d. Contains network of lymph capillaries.

**30- Regarding respiration and the changes in the thorax; choose the wrong answer:**

- a. Vertical diameter of thorax increases when the diaphragm contracts.
- b. Anteroposterior diameter is increased when the intercostal muscles contract.

- c. Expiration is a passive phenomenon.
- d. Root of the lung does not move in inspiration.

**31- Regarding the movements of respiration; select the wrong answer:**

- a. Contraction of the diaphragm Increases the vertical diameter of thorax.
- b. Elevation of 3-6 ribs is accompanied by rotation of their necks around their longitudinal axes.
- c. The amount of elevation and forward thrust of the anterior extremities of 3-6 ribs is limited.
- d. During inspiration, the last rib is fixed by the quadratus lumborum muscle.

**32- Concerning breathing; indicate the incorrect answer:**

- a. Breathing is controlled by the autonomic nervous system.
- b. The phrenic nerve is a cranial nerve.
- c. The diaphragm is active during quiet inspiration.
- d. The intercostal muscles are innervated by thoracic spinal nerves.

**33- Regarding the right lung; mark the unsuitable statement:**

- a. It shows two fissures.
- b. It has ten bronchopulmonary segments.
- c. It is usually supplied by one bronchial artery.
- d. It shows a tongue like part called lingula.

**34- Choose the wrong statement regarding the lungs:**

- a. The left lung has a cardiac notch.
- b. Each lung receives non-oxygenated blood through a pulmonary artery.
- c. Bronchial arteries supply the lungs with oxygenated blood.
- d. You hear the sounds mostly from upper lobe of left lung while performing auscultation at the back of the chest.

**35- Regarding the lungs, mark the wrong statement:**

- a. Their tissues are supplied with arterial blood by the bronchial arteries.
- b. Their lymphatic drain to the tracheo-bronchial group of the lymph nodes.
- c. Their parietal pleurae are supplied by the anterior and posterior pulmonary plexuses.
- d. The upper lobe of the right lung has three bronchopulmonary segments.

**36- Regarding the root of the lung, mark the incorrect answer:**

- a. It lies opposite the bodies of the T5, 6, 7 vertebrae

- b. It includes bronchial arteries.
- c. That of right lung lies behind the inferior vena cava.
- d. That of left lung lies anterior to the descending aorta.

**37- Concerning the root of the lung all true except:**

- a. It lies opposite the bodies of the T5, 6, 7 vertebrae.
- b. It includes the bronchial arteries.
- c. The root of left lung lies posterior to the descending aorta.
- d. Cardiac impression lies anterior and below it.

**38- The trachea begins at the level of:**

- a. C2
- b. C6
- c. T1
- d. T4

**39- The trachea ends at the level of:**

- a. T1
- b. T3
- c. T4-T5
- d. T7

**40- The trachea bifurcates into the primary bronchi at which structure?**

- a. Sternal angle
- b. Jugular notch
- c. Carotid bifurcation
- d. Clavicle

**41- The average length of the trachea in adults is:**

- a. 10-12 cm
- b. 8-9 cm
- c. 15-18 cm
- d. 20-22 cm

**42- The trachea is reinforced by:**

- a. Smooth muscle bands
- b. Fibroelastic ligaments
- c. Cartilaginous rings

d. All of the above

**43-The number of C-shaped cartilaginous rings in the trachea is approximately:**

- a. 10-12
- b. 15-20
- c. 25-30
- d. 35-40

**44-The posterior wall of the trachea is composed of:**

- a. Cartilage
- b. Fibrous tissue
- c. Trachealis muscle
- d. Elastic ligament

**45-The epithelial lining of the trachea is: (HISTO)**

- a. Simple squamous epithelium
- b. Stratified squamous epithelium
- c. Ciliated pseudostratified columnar epithelium
- d. Transitional epithelium

**46-The carina of the trachea is located at the level of:**

- a. T2
- b. T4-T5
- c. T6
- d. T8

**47-The carina is a:**

- a. Ridge of cartilage separating the primary bronchi
- b. Ligament anchoring the trachea to the lungs
- c. Fold of pleura
- d. Vascular structure

**48-The carina is highly sensitive because it is:**

- a. Richly innervated by sympathetic fibers
- b. Supplied by sensory fibers of the vagus nerve

- c. Avascular
- d. Surrounded by lymph nodes

**49-The sharpness of the carina is clinically significant in:**

- a. Detecting foreign body aspiration
- b. Stabilizing the trachea
- c. Facilitating venous drainage
- d. Regulating airflow resistance

**50-The trachea corresponds to which landmark anteriorly at its lower end?**

- a. Jugular notch
- b. Sternal angle
- c. Xiphoid process
- d. Clavicle

**51-The trachea can be palpated in the:**

- a. Suprasternal region
- b. Infraclavicular region
- c. Subcostal region
- d. Axillary region

**52-The tracheal deviation is commonly checked in cases of:**

- a. Pneumothorax
- b. Pleural effusion
- c. Cardiac tamponade
- d. All of the above

**53-The inferior border of the trachea aligns with:**

- a. The xiphoid process
- b. The second costal cartilage
- c. The fifth costal cartilage
- d. The sixth costal cartilage

**54-The arterial supply of the trachea includes branches from the:**

- a. Internal thoracic artery

- b. Inferior thyroid artery
- c. Pulmonary arteries
- d. Celiac trunk

**55-The venous drainage of the trachea is primarily via the:**

- a. Superior vena cava
- b. Internal jugular veins
- c. Inferior thyroid veins
- d. Azygos vein

**56-The nerve supply of the trachea is derived from:**

- a. Sympathetic chain and phrenic nerve
- b. Vagus nerve and sympathetic chain
- c. Phrenic nerve and hypoglossal nerve
- d. Glossopharyngeal nerve and vagus nerve

**57-The tracheal mucosa is sensitive to irritants due to:**

- a. Phrenic innervation
- b. Sympathetic fibers
- c. Parasympathetic fibers
- d. Sensory fibers of the vagus nerve

**58-The first constriction of the trachea is at:**

- a. The larynx
- b. The thoracic inlet
- c. The carina
- d. The sternum

**59-The trachea is constricted posteriorly by the:**

- a. Aortic arch
- b. Esophagus
- c. Subclavian artery
- d. Thyroid gland

**60-The trachea lies anterior to:**

- a. The esophagus

- b. The sternum
- c. The thoracic duct
- d. The carotid arteries

**61-Which structure lies laterally to the trachea?**

- a. Common carotid arteries
- b. Internal jugular veins
- c. Recurrent laryngeal nerves
- d. All of the above

**62-The second constriction of the trachea is caused by:**

- a. The left bronchus
- b. The aortic arch
- c. The pulmonary ligament
- d. The subclavian artery

**63-What are the primary bronchi branches of?**

- a. Esophagus
- b. Larynx
- c. Trachea
- d. Pharynx

**64-At what vertebral level does the trachea bifurcate into the primary bronchi?**

- a. T2-T3
- b. T4-T5
- c. T6-T7
- d. T8-T9

**65-Which primary bronchus is shorter, wider, and more vertical?**

- a. Right bronchus
- b. Left bronchus
- c. Both are equal
- d. Neither

**66-Which bronchus is more likely to be obstructed by a foreign object?**

- a. Right bronchus
- b. Left bronchus
- c. Both equally
- d. None

**67-How many secondary (lobar) bronchi does the right lung have?**

- a. 2
- b. 3
- c. 4
- d. 5

**68-How many secondary (lobar) bronchi does the left lung have?**

- a. 1
- b. 2
- c. 3
- d. 4

**69-What is the main function of the bronchi?**

- a. Gas exchange
- b. Transport of air to alveoli
- c. Secretion of mucus
- d. Regulation of blood flow

**70-Which structure separates the openings of the primary bronchi at the tracheal bifurcation?**

- a. Septum
- b. Carina
- c. Pleura
- d. Epiglottis

**71-What type of cartilage supports the bronchi?**

- a. Elastic cartilage
- b. Fibrocartilage
- c. Hyaline cartilage
- d. No cartilage

**72-What is the name of the smallest bronchi?**

- a. Terminal bronchioles
- b. Tertiary bronchi
- c. Primary bronchi
- d. Respiratory bronchioles

**73-How many tertiary (segmental) bronchi does the right lung have?**

- a. 8
- b. 9
- c. 10
- d. 11

**74-How many tertiary (segmental) bronchi does the left lung have?**

- a. 8
- b. 9
- c. 10
- d. 11

**75-The epithelium lining the bronchi is primarily:**

- a. Stratified squamous
- b. Pseudostratified columnar ciliated
- c. Simple squamous
- d. Transitional

**76-What is the primary muscle aiding in bronchodilation?**

- a. Diaphragm
- b. Intercostal muscles
- c. Smooth muscle in the bronchi
- d. Scalene muscles

**77-The right primary bronchus divides into lobar bronchi for which lung lobes?**

- a. Upper and lower only
- b. Middle and lower only
- c. Upper, middle, and lower lobes
- d. None

**78-The left primary bronchus divides into lobar bronchi for which lung lobes?**

- a. Upper and middle only
- b. Upper and lower only
- c. Middle and lower only
- d. Upper, middle, and lower lobes

**79-The tertiary bronchi correspond to which regions of the lung?**

- a. Lobes
- b. Segments
- c. Alveoli
- d. Pleura

**80- A 45-year-old man presents with dyspnea and decreased breath sounds on the right side. A chest X-ray reveals fluid accumulation in the pleural cavity. What is the most likely diagnosis?**

- a. Pneumothorax
- b. Pleural effusion
- c. Atelectasis
- d. Pulmonary embolism

**81. After a motor vehicle accident, a patient develops chest pain, dyspnea, and hypotension. Imaging shows blood in the pleural cavity. What is the most appropriate initial management?**

- a. Thoracentesis
- b. Needle decompression
- c. Chest tube insertion
- d. Observation

**82. A 22-year-old male with a history of smoking presents with sudden chest pain and shortness of breath. Imaging shows air in the pleural cavity but no mediastinal shift. What is the most likely diagnosis?**

- a. Tension pneumothorax
- b. Simple pneumothorax
- c. Empyema
- d. Pleural effusion

**83. A patient develops severe dyspnea, hypotension, and tracheal deviation to the left following chest trauma. What is the next best step?**

- a. Thoracentesis
- b. Needle decompression
- c. Chest X-ray
- d. Observation

**84. During subclavian vein catheterization, a patient develops sudden dyspnea and decreased breath sounds on the right side. What is the most likely complication?**

- a. Pneumothorax
- b. Pleural effusion
- c. Hemothorax
- d. Atelectasis

**85. What is the safest site for performing thoracentesis?**

- a. Above the upper border of the rib
- b. Below the lower border of the rib
- c. Midline at the sternum
- d. Near the clavicle

**86. In tension pneumothorax, where is the needle inserted for decompression?**

- a. 3rd intercostal space, midclavicular line
- b. 2nd intercostal space, midclavicular line
- c. 4th intercostal space, anterior axillary line
- d. 5th intercostal space, midaxillary line

**87. A 70-year-old presents with dyspnea and dullness to percussion on the right side. Thoracentesis reveals transudative fluid. What is the most likely cause?**

- A) Pneumonia
- B) Congestive heart failure
- C) Tuberculosis
- D) Malignancy

- 88. A patient develops sudden chest pain and difficulty breathing after undergoing a thoracic surgery. Chest X-ray reveals a collapsed lung with air in the pleural cavity. What is the most likely diagnosis?**
- A) Hemothorax
  - B) Pneumothorax
  - C) Pleural effusion
  - D) Pulmonary embolism
- 89. A 30-year-old male presents with hypotension and severe chest pain following a blunt trauma to the chest. Physical exam reveals decreased breath sounds and dullness to percussion on the left side. What is the most likely diagnosis?**
- A) Pneumothorax
  - B) Hemothorax
  - C) Pleural effusion
  - D) Spontaneous pneumothorax
- 90. The part of pleura that covers the medial aspects of the lungs is named the \_\_\_\_\_ pleura:**
- A) Costal.
  - B) Cervical.
  - C) Vertebral.
  - D) Mediastinal.
  - E) Diaphragmatic.
- 91. The right and left pleurae come in contact anteriorly at the level of the:**
- A) 1 st rib.
  - B) 2 nd costal cartilage.
  - C) 6 th costal cartilage.
  - D) 8 th rib.
  - E) 10th rib.
- 92. The diaphragmatic pleura is innervated peripherally by the:**
- A) Vagus nerve.
  - B) Phrenic nerve.
  - C) 1 st intercostal nerve.
  - D) 2 nd intercostal nerve.
  - E) 8 th intercostal nerve.
- 93. The parietal pleura:**
- A) Is insensitive to pain.

- B)Dips into the lung fissures.
- C) Is attached adherently to the lung surfaces.
- D) Joins the visceral pleura at the hilum of the lung.
- E)Forms the costodiaphragmatic recess with the visceral layer.

**94. An accidentally inhaled object will most likely be located in the:**

- A) Left main bronchus.
- B)Right main bronchus.
- C) Left lower segmental bronchiole.
- D) Right upper segmental bronchiole.
- E)Left inferior segmental bronchiole

**95. Which one of the following structures passes posterior to the lung roots:**

- A) The vagus nerve.
- B)The phrenic nerve.
- C) The pulmonary ligament.
- D) The pericardiophrenic vein.
- E)The pericardiophrenic artery.

**96. Which one of the following structures passes superior to the right lung roots:**

- A) The azygos vein.
- B)The arch of the aorta.
- C) The pulmonary ligament.
- D) The internal thoracic artery.
- E)The pulmonary autonomic plexus.

**97.The lung roots are located at the level of \_\_\_\_\_ thoracic vertebrae:**

- A) 1 st to 2nd
- B)2 nd to 3rd .
- C) 5 th to 7th .
- D) 9 th to 11th .
- E)11th to 12th .

**98.Which one of the following structures runs anterior to the apex of the lung?**

- A) The subclavian artery.
- B)Scalenus medius muscle.
- C) The ventral ramus of C1.
- D) The superior intercostal artery.
- E)The stellate sympathetic ganglion.

**99. Which one of the following structures leaves an impression on the mediastinal surfaces of both lungs?**

- A) The oesophagus.
- B)The arch of azygos.
- C) The arch of the aorta.
- D) The inferior vena cava.
- E)The superior vena cava.

## Nerves of thorax

- 1. The vagus nerve originates from which part of the brain?**
  - a- Medulla oblongata
  - b- Pons
  - c- Midbrain
  - d- Cerebellum
- 2. The vagus nerve is also known as which cranial nerve?**
  - a- CN III
  - b- CN X
  - c- CN IX
  - d- CN VII
- 3. The vagus nerve passes through which structure to enter the thorax?**
  - a- Jugular foramen
  - b- Foramen magnum
  - c- Internal acoustic meatus
  - d- Hypoglossal canal
- 4. The right vagus nerve passes behind which structure in the neck?**
  - a. Common carotid artery
  - b. Internal jugular vein
  - c. External carotid artery
  - d. Internal carotid artery
- 5. The left vagus nerve passes between which two structures in the neck?**
  - a. Carotid artery and internal jugular vein
  - b. Common carotid artery and subclavian artery
  - c. Subclavian artery and internal jugular vein
  - d. Common carotid artery and external jugular vein
- 6. The right vagus nerve gives rise to which important structure in the thorax?**
  - a. Left recurrent laryngeal nerve

- b. Right recurrent laryngeal nerve
- c. Phrenic nerve
- d. Sympathetic trunk

**7. The left vagus nerve gives rise to which structure in the thorax?**

- a. Right recurrent laryngeal nerve
- b. Left recurrent laryngeal nerve
- c. Cardiac branches
- d. Pulmonary branches

**8. Where does the left recurrent laryngeal nerve loop around?**

- a. Aortic arch
- b. Right subclavian artery
- c. Brachiocephalic trunk
- d. Left subclavian artery

**9. After passing through the thorax, the vagus nerve contributes to which plexus?**

- a. Celiac plexus
- b. Pulmonary plexus
- c. Cardiac plexus
- d. All of the above

**10. Which structure does the vagus nerve innervate in the thorax?**

- a. Diaphragm
- b. Heart
- c. Lungs
- d. All of the above

**11. Which branch of the vagus nerve provides motor innervation to the muscles of the larynx?**

- a. Recurrent laryngeal nerve
- b. Pharyngeal branches
- c. Superior laryngeal nerve
- d. Auricular branch

- 12. Which part of the vagus nerve provides parasympathetic innervation to the heart?**
- a. Cardiac branches
  - b. Pulmonary branches
  - c. Pharyngeal branches
  - d. Recurrent laryngeal nerve
- 13. What type of fibers does the vagus nerve carry to the lungs?**
- a. Sympathetic fibers
  - b. Sensory fibers
  - c. Parasympathetic fibers
  - d. Motor fibers
- 14. The vagus nerve innervates which of the following muscles?**
- a. Cricothyroid muscle
  - b. Pharyngeal muscles
  - c. Sternocleidomastoid
  - d. Trapezius
- 15. The vagus nerve contributes to which of the following in the heart?**
- a. Decreased heart rate
  - b. Increased heart rate
  - c. Increased contractility
  - d. Increased conduction velocity
- 16. The vagus nerve travels posterior to which structure in the thorax?**
- a. Aortic arch
  - b. Pulmonary trunk
  - c. Brachiocephalic trunk
  - d. Left subclavian artery
- 17. What is the role of the vagus nerve in the bronchial tree?**
- a. Stimulates bronchoconstriction
  - b. Stimulates bronchodilation
  - c. Inhibits mucus secretion
  - d. Increases surfactant production

- 18. The left vagus nerve descends in the thorax between which two structures?**
- a. Aortic arch and pulmonary artery
  - b. Pulmonary artery and esophagus
  - c. Esophagus and diaphragm
  - d. Aortic arch and subclavian artery
- 19. Which of the following is a branch of the vagus nerve that supplies the larynx?**
- a. Internal branch of the superior laryngeal nerve
  - b. External branch of the superior laryngeal nerve
  - c. Recurrent laryngeal nerve
  - d. All of the above
- 20. The vagus nerve is important in the parasympathetic regulation of which system?**
- a. Respiratory system
  - b. Cardiovascular system
  - c. Gastrointestinal system
  - d. All of the above
- 21. Which of the following is a consequence of damage to the recurrent laryngeal nerve?**
- a. Hoarseness
  - b. Dysphagia
  - c. Weakness in the diaphragm
  - d. Loss of sensation in the lungs
- 22. The right vagus nerve gives off which branch that contributes to the heart's parasympathetic innervation?**
- a. Pulmonary branches
  - b. Recurrent laryngeal nerve
  - c. Cardiac branches
  - d. Esophageal branches

**23. What is the clinical significance of the vagus nerve in relation to the heart?**

- a. It increases heart rate in response to stress
- b. It increases heart rate during exercise
- c. It decreases heart rate through parasympathetic control
- d. It regulates blood pressure

**24. The left vagus nerve contributes to the formation of which of the following?**

- a. Pulmonary plexus
- b. Sympathetic plexus
- c. Lumbar plexus
- d. Brachial plexus

**25. The phrenic nerve originates from which spinal segments?**

- a. C1-C4
- b. C3-C5
- c. C5-C7
- d. C6-C8

**26. The phrenic nerve provides motor innervation to which muscle?**

- a. Diaphragm
- b. Intercostal muscles
- c. Abdominal muscles
- d. Rectus abdominis

**27. The phrenic nerve is mainly responsible for which function?**

- a. Breathing
- b. Digestion
- c. Sensory innervation of the face
- d. Sensory innervation of the upper limb

**28. The right phrenic nerve passes in front of which structure in the thorax?**

- a. Aortic arch
- b. Pulmonary trunk

- c. Esophagus
- d. Inferior vena cava

**29. The left phrenic nerve passes between which two structures in the thorax?**

- a. Aortic arch and pulmonary trunk
- b. Esophagus and aorta
- c. Pulmonary trunk and superior vena cava
- d. Brachiocephalic vein and subclavian artery

**30. Which of the following structures is innervated by the phrenic nerve?**

- a. Lungs
- b. Diaphragm
- c. Heart
- d. Kidneys

**31. The phrenic nerve also carries sensory fibers to which structures?**

- a. Pleura
- b. Pericardium
- c. Diaphragm
- d. All of the above

**32. The right phrenic nerve is located anterior to which structure?**

- a. Aortic arch
- b. Esophagus
- c. Right lung
- d. Right atrium of the heart

**33. The left phrenic nerve descends between which two anatomical structures in the mediastinum?**

- a. Aortic arch and pulmonary trunk
- b. Aorta and left lung
- c. Pulmonary artery and left atrium
- d. Left subclavian artery and brachiocephalic trunk

**34. Which of the following is a consequence of phrenic nerve paralysis?**

- a. Loss of sensation in the abdomen
- b. Paralysis of the diaphragm, leading to breathing difficulties
- c. Loss of sensory input from the lungs
- d. Decreased heart rate

**35. Which of the following could cause damage to the phrenic nerve?**

- a. Thoracic surgery
- b. Neck trauma
- c. Compression due to a tumor in the mediastinum
- d. All of the above

**36. The phrenic nerve contributes to which of the following?**

- a. Motor innervation to the diaphragm
- b. Sensory innervation to the peritoneum
- c. Sensory innervation to the pleura
- d. All of the above

**37. The phrenic nerve is responsible for motor control of the diaphragm's movement during which process?**

- a. Inspiration
- b. Expiration
- c. Coughing
- d. Swallowing

**38. The phrenic nerve passes between which two important vascular structures in the mediastinum?**

- a. Aorta and superior vena cava
- b. Pulmonary trunk and aortic arch
- c. Subclavian artery and brachiocephalic vein
- d. Inferior vena cava and aorta

**39. A patient with phrenic nerve injury may experience which of the following symptoms?**

- a. Hyperventilation
- b. Hypoventilation

- c. Loss of the gag reflex
- d. Loss of sensation in the limbs

**40. Which of the following best describes the location of the phrenic nerve in the neck?**

- a. It lies posterior to the common carotid artery.
- b. It lies anterior to the internal jugular vein.
- c. It runs alongside the vagus nerve.
- d. It is located deep to the sternocleidomastoid muscle.

**41. The sympathetic chain extends from which part of the spinal cord?**

- a. C1-C4
- b. T1-L2
- c. L1-S2
- d. T1-T12

**42. The sympathetic chain is located posterior to which structure in the thoracic cavity?**

- a. Heart
- b. Aortic arch
- c. Thoracic aorta
- d. Inferior vena cava

**43. The sympathetic chain in the thoracic region is connected to the spinal nerves by which of the following?**

- a. Rami communicantes
- b. White rami
- c. Gray rami
- d. Both B and C

**44. The sympathetic chain in the thoracic region provides sympathetic innervation to which of the following structures?**

- a. Heart
- b. Lungs
- c. Blood vessels
- d. All of the above

**45. The sympathetic fibers in the thoracic sympathetic chain are primarily responsible for which of the following?**

- a. Increased heart rate
- b. Bronchodilation
- c. Vasoconstriction
- d. All of the above

**46. Which of the following is true about the sympathetic chain in the thoracic region?**

- a. It has preganglionic fibers that synapse in the sympathetic ganglia.
- b. It has only postganglionic fibers.
- c. It is located anterior to the aorta.
- d. It supplies only the upper thoracic organs.

**47. The sympathetic chain in the thoracic region sends fibers to the heart through which structure?**

- a. Cardiac plexus
- b. Pulmonary plexus
- c. Esophageal plexus
- d. Celiac plexus

**48. Which of the following nerves arise from the sympathetic chain in the thoracic region?**

- a. Thoracic splanchnic nerves
- b. Phrenic nerve
- c. Vagus nerve
- d. Median nerve

## Development of respiratory system

**1. The development of the lung begins at which embryonic week?**

- a. 2nd week
- b. 3rd week
- c. 4th week
- d. 5th week

**2. The laryngotracheal groove forms during which week of development?**

- a. 2nd week
- b. 3rd week
- c. 4th week
- d. 5th week

**3. The tracheoesophageal septum divides the foregut into which two structures?**

- a. Stomach and esophagus
- b. Lungs and trachea
- c. Trachea and esophagus
- d. Small intestine and large intestine

**4. The tracheoesophageal septum is formed from which structure?**

- a. Endoderm
- b. Mesoderm
- c. Ectoderm
- d. Neural crest cells

**5. The laryngotracheal tube gives rise to which of the following?**

- a. Trachea
- b. Lungs
- c. Bronchi
- d. All of the above

**6. The first bronchial buds appear at which week of development?**

- a. 3rd week
- b. 4th week
- c. 5th week
- d. 6th week

**7. The primary bronchi are formed during which stage of lung development?**

- a. Embryonic stage
- b. Pseudoglandular stage
- c. Canalicular stage
- d. Alveolar period

**8. During the pseudoglandular stage, which key process occurs?**

- a. Formation of alveoli
- b. Formation of terminal bronchioles
- c. Development of bronchi
- d. Lung vascularization

**9. The canalicular stage occurs during which weeks of embryonic development?**

- a. 6-16 weeks
- b. 16-26 weeks
- c. 26-36 weeks
- d. 36-40 weeks

**10. The terminal sac period of lung development involves which process?**

- a. Formation of the larynx
- b. Formation of alveolar sacs
- c. Development of respiratory bronchioles
- d. Production of surfactant

**11. The alveolar period begins around which week of development?**

- a. 24 weeks
- b. 36 weeks
- c. 38 weeks

d. 40 weeks

**12. Which of the following is the last structure to develop in the lung?**

- a. Terminal bronchioles
- b. Alveoli
- c. Respiratory bronchioles
- d. Trachea

**13. The development of the diaphragm begins around which embryonic week?**

- a. 3rd week
- b. 4th week
- c. 5th week
- d. 6th week

**14. The diaphragm is primarily derived from which embryonic tissue?**

- a. Mesoderm
- b. Endoderm
- c. Ectoderm
- d. Neural crest cells

**15. Which structure contributes to the diaphragm during its development?**

- a. Septum transversum
- b. Pleuroperitoneal folds
- c. Dorsal mesentery of the esophagus
- d. All of the above

**16. The pleuroperitoneal folds contribute to which part of the diaphragm?**

- a. Central tendon
- b. Muscular portion
- c. Lateral portions
- d. Posterior portion

**17. The septum transversum is responsible for the formation of which structure?**

- a. Diaphragm
- b. Liver
- c. Heart
- d. Stomach

**18. The diaphragm is innervated by which nerves?**

- a. Vagus and phrenic nerves
- b. Phrenic nerve
- c. Intercostal nerves
- d. Accessory nerve

**19. The formation of the lung bud is induced by which structure?**

- a. Endoderm
- b. Mesoderm
- c. Neural crest cells
- d. Ectoderm

**20. The laryngeal epithelium is derived from which embryonic layer?**

- a. Endoderm
- b. Mesoderm
- c. Neural crest cells
- d. Ectoderm

**21. The first appearance of the lung bud occurs during which week?**

- a. 3rd week
- b. 4th week
- c. 5th week
- d. 6th week

**22. The tracheoesophageal septum begins to form during which embryonic week?**

- a. 2nd week
- b. 3rd week
- c. 4th week
- d. 5th week

**23. The lung buds develop from the anterior part of which structure?**

- a. Pharynx
- b. Tracheoesophageal tube
- c. Stomach
- d. Esophagus

**24. During the pseudoglandular stage, the epithelium of the bronchi is in which form?**

- a. Cuboidal
- b. Columnar
- c. Squamous
- d. Ciliated

**25. In the canalicular stage, the development of which structure is significant for gas exchange?**

- a. Alveoli
- b. Bronchioles
- c. Respiratory bronchioles
- d. Terminal bronchioles

**26. The terminal sac period involves which of the following?**

- a. Formation of mature alveoli
- b. Production of surfactant
- c. Vascularization of the lungs
- d. Both B and C

**27. The alveolar period of lung development primarily involves the maturation of which structure?**

- a. Bronchioles
- b. Alveoli
- c. Respiratory bronchioles
- d. Trachea

**28. Surfactant production begins to occur during which period of lung development?**

- a. Embryonic stage

- b. Pseudoglandular stage
- c. terminal sac period
- d. Alveolar period

**29. The lung vascularization begins during which stage of lung development?**

- a. Embryonic stage
- b. Pseudoglandular stage
- c. Canalicular stage
- d. Terminal sac period

**30. The epithelial lining of the conducting airways is derived from which embryonic tissue?**

- a. Endoderm
- b. Ectoderm
- c. Mesoderm
- d. Neural crest cells

**31. The tracheal cartilage develops during which stage of lung development?**

- a. Embryonic stage
- b. Pseudoglandular stage
- c. Canalicular stage
- d. Alveolar period

**32. A congenital anomaly in which the trachea and esophagus are abnormally connected, leading to aspiration pneumonia, is known as:**

- a. Bronchogenic cyst
- b. Tracheoesophageal fistula
- c. Congenital diaphragmatic hernia
- d. Pulmonary hypoplasia

**33. Which condition involves a malformation of the diaphragm, often leading to a herniation of abdominal organs into the thoracic cavity?**

- a. Bronchial atresia
- b. Congenital diaphragmatic hernia
- c. Pulmonary sequestration

## **d. Congenital cystic adenomatoid malformation (CCAM)**

**34. In which condition does the lung develop abnormally, resulting in cystic lesions or malformations?**

- a. Bronchial atresia**
- b. Congenital cystic adenomatoid malformation (CCAM)**
- c. Hyaline membrane disease**
- d. Pulmonary hypoplasia**

**35. Which congenital anomaly occurs when there is an abnormal connection between the trachea and the esophagus, leading to aspiration and feeding difficulties?**

- a. Pulmonary hypoplasia**
- b. Bronchopulmonary dysplasia**
- c. Tracheoesophageal fistula**
- d. Laryngeal cleft**

**36. In which condition do abnormal bronchi develop into dilated cystic spaces, leading to infection and air trapping?**

- a. Bronchopulmonary sequestration**
- b. Bronchiectasis**
- c. Congenital diaphragmatic hernia**
- d. Pulmonary hypoplasia**

**37. A congenital anomaly characterized by abnormal development of the bronchial tree, leading to the absence of certain bronchial segments, is known as:**

- a. Pulmonary sequestration**
- b. Congenital bronchial atresia**
- c. Congenital cystic adenomatoid malformation (CCAM)**
- d. Respiratory distress syndrome**

**38. By the end of the 6th month, the lungs develop approximately how many generations of subdivisions?**

- a. 10**
- b. 15**
- c. 17**

d. 20

**39. Which congenital anomaly results in respiratory distress syndrome?**

- a. Ectopic lung lobes
- b. Esophagotracheal fistula
- c. Lack of surfactant
- d. Congenital cysts