Thorax MCQs

1. Regarding the anterior body wall
a. The umbilicus receives cutaneous innervation from T8
b. The neurovascular bundle lies between the external and the internal intercostal muscles
c. The nipple receives cutaneous innervation from T6
d. The intercostal nerve lies inferior to the intercostal artery
e. The suprapubic skin is innervated by T10

2. The oesophageal opening in the diaphragm transmits all except:
a. Vagal nerve trunk
b. Oesophageal branches of gastric artery
c. Lymphatics
d. Right phrenic nerve
e. Veins – oesophageal branches of gastric veins

3. The vena caval opening foramen in the diaphragm lies at the level of
a. T12
b. T8
c. T10
d. L1
e. C7

4. Regarding the descending part of the thoracic aorta
a. It is a component of the middle mediastinum
b. It begins at the level of T3 vertebra
c. It passes through the diaphragm behind the lateral arcuate ligament
d. It begins at the beginning of the arch of the aorta
e. It passes to the abdomen at the level of T12

5. Regarding surface markings of the lungs the following is true
a. Apex of lungs rises 5cm above the lateral third of clavicle
b. Oblique fissure follows approximately the axis of 6th rib
c. The two pleura diverge away at 6th costal cartilage level behind sternum
d. Transverse fissure of right lung is at 6th costal cartilage level
e. Oblique fissure following medial border of scapula on abducted arm

6. Which heart valve has two cusps?
a. Aortic
b. Mitral
c. Pulmonary
d. Pulmonary and aortic
e. Tricuspid

7. In the lung
a. The horizontal fissue is always present in the right side
b. The fissures create a roughened surface to promote easier expansion
c. The obliquity of the fissure ensures better expansion of the apex of the lung
d. The lingual is a separate lobe of the left side
e. Only 2% of lungs have incomplete oblique fissures

8. The right phrenic nerve
a. Passes down through the mediastinum posterior to the lung root
b. Is the sole motor supply to the right dome of diaphragm and crus
c. Gives off the right recurrent laryngeal nerve in the neck
d. Contains 50% motor and 50% sensory fibres
e. Divides into two main branches on the under surface of diaphragm

9. Within the thoracic inlet
a. The oesophagus lies against the body of C5
b. The arch of aorta passes from right to left
c. On the right side, the trachea is separated from the vagus nerve and apex of the lung
d. The veins entering the superior mediastinum lie behind the arteries
e. The trachea touches the jugular notch of the manubrium

10. Left dominance means
a. Left side of the heart is more important
b. Posterior interventricular branch is given off from right coronary artery
c. Posterior interventricular branch is given off bya a large anterior interventricular artery traveling off left coronary artery
d. It is more common than right dominance
e. It is given off directly from left coronary artery

11. In the chest wall
a. The intercostal artery is more superficial than the vein
b. The intercostal artery lies between the intercostal nerve and vein
c. The transverses muscle lies between the external and internal intercostals
d. The neurovascular bundle lies between the external and internal intercostals
e. All of the above

12. The oesophageal opening in the diaphragm is opposite
a. T6
b. T8
c. T10
d. T11
e. T12

13. The most superficial structure in the thoracic inlet is
a. Vagus nerve
b. Right subclavian artery
c. Left subclavian artery
d. Thoracic duct
e. Superior vena cava

14. The diaphragm
a. Has the oesophageal opening opposite T8 vertebra
b. Is supplied by the 5th, 6th and 7th cervical nerve roots
c. Has a major role in expiration
d. Has a vena caval foramen opposite T10 vertebra
e. Has an aortic opening opposite T12 vertebra

15. In the thorax
a. The carina lies at the level of the upper border of the T4 vertebra in the cadaver
b. The thoracic duct drains into the superior vena cava
c. C4 and T3 are adjacent dermatomes
d. The trachea lies in contact with the manubrium
e. The apex of the lung is above the thoracic inlet

16. Which of the following is not true of the surface markings of the left pleura?
a. It lies behind the sternoclavicular joint
b. It lies in the midline behind the angle of Louis
c. It lies at the level of the 6th rib in the midclavicular line
d. It crosses the midaxillary line at the level of the 10th rib
e. It crosses the 12th rib at the lateral border of the sacrospinalis muscle

17. In the anatomical position, the heart:
a. Has a right border comprised of right atrium and right ventricle
b. Has an anterior (sternocostal) surface comprised of right atrium, right ventricle and a strip of left ventricle
c. Has a posterior surface comprised of left atrium, 4 pulmonary veins and left ventricle
d. Has an inferior (diaphragmatic) surface comprised of left atrium, inferior vena cava and right ventricle
e. All of the above are true

18. With respect to the contents of the posterior mediastinum, all are true except:
a. The oesophagus extends from the level of cricoid cartilage to traverse the diaphragm at T10
b. The descending thoracic aorta gives off the posterior intercostals arteries
c. It contains the perihilar lymph nodes
d. The oesophagus is 25cm in length
e. The descending aorta commences at the lower level of T4 vertebra

19. Which is true of the sternum?
a. Jugular notch lies at the level of T4
b. 2nd costal cartilage articulates separately with the manubrium and the body of the sternum
c. sternohyoid attaches to the manubrium, below the 1st costal cartilage
d. interclavicular ligament makes no attachment to the sternum
e. posterior surface of the manubrium is completely covered with pleura

20. Which is not a true muscle attachment to the ribs?
a. Pectoralis mnior – anterior surface of ribs 3-5
b. Serratus posterior superior – lateral to the angle of ribs 2-5
c. Internal oblique – inner surface of last 6 costal cartilages
d. Levator costae – lateral to tubercle, on upper border
e. Rectus abdominus – anterior surface of 5th-7th cartilages

21. Which is not a feature of a typical rib?
a. Medial facet of the tubercle faces backwards
b. Angle is the most posterior point
c. Necks are all of equal length
d. There are 3 costotransverse ligaments
e. Intraarticular ligament attaches from horizontal ridge on the head to the intervertebral disc

22. Which is true of the first rib?
a. Scalenus medius attaches to the scalene tubercle
b. Subclavian vein lies in the subclavian groove
c. Supreme intercostals vein lies medial to the superior intercostals artery
d. Scalenus posterior attaches lateral to the tubercle
e. Head articulates with vertebrae C7 and T1

23. Which is not true of the oesophagus?
a. There is usually a constriction at 27cm from the lips, where the left main bronchus crosses
b. Crosses in front of the descending aorta
c. Upper part drains into the azygos vein
d. Begins at the level of C6 vertebra
e. Receives nerve supply from the recurrent laryngeal nerve

24. Phrenic nerve supplies the sensation to all but
a. Diaphragm
b. Mediastinal pleura
c. Peritoneum
d. Left ventricle
e. Pericardium

25. Which is true of the vagus nerves?
a. Left vagus is held away from the trachea by branches of the aortic arch
b. Run in front of the lung roots
c. Vagal trunks receive fibres from the ipsilateral nerve only
d. Left vagus crosses the aortic arch superficial to the left superior intercostal vein
e. Right vagus runs superficial to the azygos vein

26. Which is true of the thoracic sympathetic trunk
a. Passes into the abdomen behind lateral arcuate ligament
b. Greater splanchnic nerve comes from 3rd to 7th cervical ganglia
c. 1st thoracic ganglion often fuses with the inferior cervical ganglion
d. crosses 1st rib lateral to the superior intercostals artery
e. gives fibres to the oesophageal plexus

27. Pleural reflection lies at which rib level in the midaxillary line?
a. 6th
b. 8th
c. 9th
d. 10th
e. 12th

28. What travels through the diaphragm with the oesophagus?
a. ?
b. ?
c. ?
d. ?
e. ?

29. What lies posterior to the right root of lung
a. Aorta
b. Right phrenic nerve
c. Right vagus nerve
d. ?
e. ?

30. Regarding the right coronary artery
a. Course through the left auricle and infundibulum
b. Supplies 60% of AV nodes
c. Usually has a posterior interventricular branch
d. Supplies 30% of SA nodes
e. ?

31. The thoracic duct
a. Commences level with the body of T10
b. Enters the point of confluence of the left internal jugular and axillary vein
c. Receives the left jugular and subclavian lymph trunks
d. Receives lymph from the right thoracic wall
e. Passes in front of the oesophagus

32. The phrenic nerve
a. Attempts to reach the midline at all levels
b. Is solely motor
c. Lies in front of the lung root
d. Passes through the diaphragm at T12
e. Splits into two main branches on the undersurface of the diaphragm

33. In the chest wall
a. The neurovascular bundle lies between the external and internal intercostals
b. The transverses muscle lies between the internal and external intercostals
c. The intercostal artery lies netween the nerve and vein
d. The intercostal artery is more superficial than the vein
e. All of the above

34. The oesophageal opening in the diaphragm is at
a. T6
b. T8
c. T10
d. T12
e. L1

35. The trachea
a. Drains to axillary lymph nodes
b. Is supplied by glossopharyngeal nerve
c. Is marked at its lower end by the sternal angle
d. Enters the thoracic inlet slightly to the left
e. Commences below the cricoid at the level of C5

36. The most superficial structure in the thoracic inlet is the
a. Vagus nerve
b. Superior vena cava
c. Right subclavian artery
d. Left subclavian artery
e. Thoracic duct

37. The diaphragm
a. Has the oesophageal opening opposite the T8 vertebrae
b. Is supplied by C4, 5, 6
c. Has a major role in expiration
d. Has a vena caval opening at T10
e. Has an aortic opening opposite T12

38. Which passes through the diaphragm with the oesophagus?
a. Azygos vein
b. Right vagus
c. Sympathetic trunks
d. Thoracic duct
e. Phrenic nerves

39. With regard to the coronary arteries
a. Right arises from the posterior coronary sinus
b. Left supplies the conducting system in most patients
c. Right supplies the posterior descending branch in most patients
d. There are no arteriolar anastomoses between left and right
e. ?

40. Regarding bronchopulmonary segments, which is FALSE?
a. There are approximately 10 segments in each lung
b. The lingual is divided into upper and lower segments
c. ?
d. ?
e. ?

41. Which muscle is NOT used in forced expiration?
a. Transverses abdominis
b. Rectus abdominis
c. Diaphragm
d. External oblique
e. Internal oblique

42. Which vessel passes directly behind the right hilum?
a. Right phrenic nerve
b. Right vagus nerve
c. Azygos vein
d. Internal mammary artery
e. Hemi-azygos vein

43. In the superior mediastinum
a. The apex of the left lung abuts the trachea
b. The left vagus is in contact with the trachea
c. The right phrenic descends in contact with SVC
d. The azygos vein hooks under the right main bronchus
e. SVC runs posterior to the right main bronchus

44. Regarding the diaphragm
a. Its fibres arise in continuity with those of the internal oblique muscle
b. It has a central tendon which is fused inseparably to the visceral pericardium
c. Its right crus is fixed to the upper two lumbar vertebrae
d. 95% of its muscle fibres are of the slow twitch fatigue resistant variety
e. its proprioceptive fibres come from the lower intercostal nerves

45. The diaphragm
a. Has an aortic opening which transmits the right vagus nerve
b. Has an oesophageal opening at the level of T8
c. Is pierced by the left phrenic nerve at the left dome
d. Is supplied in its central part mainly by the pericardiophrenic and musculophrenic arteries
e. Has a left dome which lies higher than the right dome

46. The major arterial supply to the interventricular septum originates from the
a. Circumflex artery
b. Marginal artery
c. Posterior descending
d. Anterior descending
e. Conus artery

47. The vagus nerve
a. Arises in a series of rootlets from the pons
b. Lies outside the carotid sheath in the neck
c. Supplies muscles of the larynx via the recurrent laryngeal nerve
d. Passes in front of the root of the lung
e. Has a superior and inferior ganglion within the jugular fossa

48. Regarding the surface markings of the lung and pleura
a. The border of the lung lies two ribs below the pleural reflection
b. The hilum of the lungs lie at the level of T10 verterbra
c. The oblique fissure follows the line of T10 vertebra
d. The oblique fissure follows the line of the 5th rib
e. The horizontal fissure meets the oblique fissure in the left midaxillary line
f. The lower border of the lung lies at the level of the sixth rib in the midaxillary line

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

Thorax

Section 1

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1) Thoracic skeleton:
   a) the function of the ribs is primarily to protect the thoracic contents
   b) each rib articulates with its own thoracic vertebra and the one above
   c) the tubercle of a typical rib has two facets, the lateral facet being non-articular
   d) the 2nd to 7th sternocostal joints are synovial type, each with a single cavity
   e) the body of the sternum usually fuses with the manubrium with advancing age

2) Diaphragm:
   a) median arcuate ligament is at L1
   b) vena caval opening transmits IVC and left phrenic nerve
   c) oesophageal opening is at T8
   d) expiration depends on active contraction of the diaphragm
   e) the motor supply to the diaphragm is solely from the phrenic nerves

3) With respect to the thoracic wall, which is TRUE?
   a) intercostal and lumbar arteries pass forward in the neurovascular plane between internal and external oblique
   b) lymphatic drainage above the umbilicus drains posteriorly to the scapular (post) group of axillary nodes
   c) division of a single intercostal nerve causes anaesthesia in its supply area
   d) the thoracoepigastric vein unites the internal thoracic vein and the superficial epigastric vein – connecting IVC and SUC
   e) venous return follows intercostal and lumbar arteries only

4) The oesophagus passes through the diaphragm at the level of T10 vertebra. It is accompanied by:
   a) right phrenic nerve
   b) left phrenic nerve
   c) oesophageal branch of the right gastric artery
   d) vagal trunks
   e) hemiazygous vein

5) The aorta passes through the diaphragm at the level of T12. It is accompanied by:
   a) azygous vein
   b) thoracic duct
   c) hemiazygous vein
   d) a and b correct
   e) a, b and c correct

6) The IVC passes through the diaphragm at the level of T8, which is TRUE?
   a) this occurs to the left of the midline behind the 7th costal cartilage
   b) the left phrenic nerve accompanies it
   c) this occurs behind the 8th right costal cartilage
   d) the right phrenic nerve accompanies it
   e) it passes between the muscular levels of the diaphragm

7) Accessory muscles of inspiration include all EXCEPT:
   a) scalene muscles
   b) latissimus dorsi
   c) sternocleidomastoid
   d) quadratus lumborum
   e) erector spinae

8) With respect to the superior mediastinum, which is FALSE?
   a) the trachea is separated from the apex of the left lung by the left common carotid and left subclavian
   b) the SUC and brachiocephalic veins lie anterior to the brachiocephalic trunk
   c) the vagus nerve (right) lies medial to the right common carotid artery
   d) the trachea bifurcates at the lower limit of the superior mediastinum
   e) the thymus lies behind the manubrium

9) With respect to the mediastinum:
   a) the vagus nerves pass in front of the lung roots
   b) the phrenic nerves pass behind the lung roots
   c) the vagus nerves pass behind the lung roots
   d) the left phrenic passes anterior to the left bronchus and exits the diaphragm through the IVC opening
   e) the right recurrent laryngeal nerve hooks around the ligamentum arteriosum

10) With respect to the cardiac plexuses:
   a) the superficial plexus lies to the right of the ligamentum arteriosum, in front of the tracheal bifurcation, behind the aortic arch
   b) the deep plexus is smaller and lies in front of the ligamentum arteriosum
   c) the plexuses consist only of sympathetic and parasympathetic fibres
   d) pain fibres run with sympathetic nerves → sympathetic ganglia (3 cervical and upper 4-5 thoracic ganglia of both sides)
   e) sympathetic fibres accelerate the heart and constrict the coronary arteries

11) With respect to the heart:
   a) the inferior (diaphragmatic) surface is made up of one third right ventricle and two thirds left ventricle, separated by the posterior interventricular branch of the left coronary artery
   b) the right border of the heart extends from the lower border of the right 3^{rd} costal cartilage to the lower border of the right 6^{th} costal cartilage
   c) the posterior surface (base) consists almost entirely of the left atrium receiving the three pulmonary veins
   d) the left border consists of the left ventricle only
   e) the right border consists mostly of the right atrium

12) All but which of the following are tributaries of the coronary sinus of the heart?
   a) the anterior cardiac vein
   b) the great cardiac vein
   c) the middle cardiac vein
   d) the oblique vein (of the LA)
   e) the posterior vein of the LV

13) The posterior mediastinum contains all but which of the following?
    a) thoracic aorta
    b) oesophagus
    c) accessory hemiazygous vein
    d) the azygous vein
    e) the sympathetic trunks

14) With respect to the root of the lung:
    a) the left pulmonary artery is longer than the right
    b) the bronchial branch to the upper lobe is separate on the left
    c) the pulmonary veins lie anterior and inferior to bronchus
    d) the pulmonary ligament connects the right and left lungs directly
    e) the pulmonary trunk divides in front of the right main bronchus

15) The deep cardiac plexus:
    a) is functionally separate from the superficial cardiac plexus
    b) lies to the right of ligamentum arteriosum
    c) receives predominantly right phrenic input
    d) is posterior to the bifurcation of the trachea
    e) is smaller than the superficial cardiac plexus

16) The abdominal inferior vena cava:
    a) is shorter than the abdominal aorta
    b) enters the thorax through muscular diaphragm at T8
    c) creates a groove over the quadrate lobe of liver
    d) crosses the right renal and suprarenal arteries
    e) commences in front of the right common iliac artery

17) The testicular veins:
    a) have valves at their terminations
    b) is formed by two venae comitantes in the pelvis
    c) enter the inferior vena cava
    d) receive the suprarenal veins as tributaries
    e) none of the above

18) Regarding the ribs:
    a) the 1st costal cartilage articulates with the manubrium by a synovial joint
    b) the radiate ligament has two bands, upper and lower
    c) the typical ribs are 3rd to 10th
    d) the groove for the subclavian artery is anterior to the scalene tubercle on the 1st rib
    e) the angle of the 2nd rib is the most posterior part of its curvature

19) Regarding attachments to the thoracic cage:
    a) pectoralis major has slips of origin from the upper 8 costal cartilages
    b) the first digitation of serratus anterior attaches to the 1st and 2nd rib
    c) rectus abdominus is attached to the anterior surfaces of the 7th to 10th costal cartilages
    d) iliocostalis and longissimus, parts of erector spinae, are attached between the heads and tubercles of each rib
    e) serratus anterior is attached to the lower 8 ribs

20) In the superior mediastinum:
    a) the azygous vein arches under the right main bronchus
    b) the right brachiocephalic vein receives the thoracic duct
    c) the aortic arch is crossed on the left side by the phrenic and vagus nerves
    d) the superficial cardiac plexus contains right and left vagal and sympathetic fibres
    e) the superior vena cava receives the azygous vein at the lower border of the right 1st costal cartilage

21) Regarding the pericardium:
    a) the superior vena cava does not fuse with the fibrous pericardium
    b) the transverse sinus separates the four pulmonary veins
    c) the parietal layer of the serous pericardium has no nerve supply
    d) the strong sternopericardial ligaments connect fibrous pericardium to upper/lower ends of sternum
    e) the oblique sinus permits pulsation of the left atrium

22) Regarding the gastrointestinal tract:
    a) the oesophagus enters the abdomen at T8 level
    b) the right gastric artery is a branch of the splenic artery
    c) the hepatopancreatic ampilla opens into the horizontal part of the duodenum
    d) the taeniae coli converge at the ileocaecal valve
    e) McBurneys point is one third of the way up the oblique line that joins the right anterior superior iliac spine to the umbilicus

23) The pelvic splanchnic nerves are:
    a) derived from S1, 2, 3, 4
    b) motor to the mm of bladder neck and anal sphincter
    c) motor to all the gut
    d) secretomotor to the gut from splenic flexure dome
    e) sympathetic nerves

24) The anterior third of the serotom is supplied by:
    a) ilioinguinal nerve
    b) sciatic nerve branches
    c) peroneal branches of the posterior femoral cutaneous nerve
    d) a branch of the pudendal nerve
    e) none of the above

25) The ureters:
    a) are 25cm long
    b) are crossed anteriorly by gonadal vessels
    c) leave the psoas muscle at the bifurcation of the common iliac artery
    d) are retroperitoneal
    e) all of the above

26) Regarding intercostal blood vessels:
    a) in each space there are single anterior and posterior intercostal veins
    b) right sided superior intercostal vv drain into the brachiocephalic vein
    c) the second intercostal space does not contain a posterior intercostal artery
    d) all intercostal vv are branches of the descending thoracic aorta
    e) all this is clinically relevant

27) Regarding blood supply to the heart:
    a) the SA nodal artery is more commonly a branch of the left coronary artery
    b) 40% of hearts show "left dominance"
    c) the marginal and anterior interventricular arteries are the main branches of the left coronary artery
    d) the right coronary artery arises from the posterior aortic sinus
    e) the circumflex artery travels in the atrioventricular groove

28) With respect to the bronchi:
    a) the carina lies to the left of the midline
    b) the left apicoposterior bronchus of the upper lobe rises highest from the posterior surface of the lung
    c) each lung has eight segmental bronchi
    d) the left main bronchus is shorter than the right
    e) blood supply is via the pulmonary arteries

29) The thoracic duct:
    a) commences at L1
    b) passes through the oesophageal opening of the diaphragm (T10)
    c) enters the right side of the superior mediastinum
    d) does not drain the right arm
    e) terminates in the inferior vena cava

30) The oesophageal opening in the diaphragm transmits:
    a) azygous vein
    b) vagus nerve
    c) right phrenic nerve
    d) sympathetic trunk
    e) thoracic duct

31) Regarding the intercostal space:
    a) the neurovascular space lies deep to the transversus group
    b) the collateral nerves lie just above the ribs
    c) the first intercostal nerve does not supply muscle
    d) the lower third intercostal nerves supply the abdominal wall
    e) all intercostal arteries are branches of the descending thoracic aorta

32) The azygous vein:
    a) has an avascular fibrous cord in the abdomen
    b) begins as the union of ascending lumbar vein with the subcostal vein on the left side
    c) arches over the right pulmonary artery
    d) receives veins from the upper third of the oesophagus
    e) usually enters the brachiocephalic vein

33) Which doesn't drain into the cardiac sinus?
    a) great cardiac vein
    b) anterior cardiac vein
    c) small cardiac vein
    d) oblique vein of the left atrium
    e) posterior vein of the left ventricle

34) The cardiac plexus:
    a) has a larger superficial part and a smaller deep part
    b) is made up of sympathetic and parasympathetic fibres only
    c) receives fibres from the left vagus nerve and left cervical sympathetic ganglion only into the superficial part
    d) the deep part lies to the left of the ligamentum arteriosum
    e) has preganglionic sympathetic fibres

35) Regarding the pericardium:
    a) the transverse sinus separates the four pulmonary veins
    b) the parietal layer of the serous pericardium has no nerve supply
    c) the fibrous pericardium is fused with the IVC
    d) the fibrous pericardium is supplied by the phrenic nerve
    e) strong sternopericardial ligaments connect the fibrous pericardium to the sternum

36) Which muscle is not used in inspiration?
    a) erector spinae
    b) quadratus lumborum
    c) latissimus dorsi
    d) transversus thoracis
    e) pectoralis major

37) Which is not found in the posterior mediastinum?
    a) descending thoracic aorta
    b) thoracic duct
    c) phrenic nerves
    d) azygous vein
    e) lymph nodes

38) Regarding the phrenic nerves:
    a) pass behind anterior scalene muscle
    b) the right nerve pierces the muscular part of the diaphragm
    c) they are always in contact with pleura laterally
    d) run in mediastinum behind the lung root
    e) split into four main branches – anterior, posterior, medial and lateral

39) The vagus nerve:
    a) the right vagus nerve is in contact with the trachea
    b) passes in front of the lung root
    c) the right recurrent laryngeal branch hooks around the right subclavian artery
    d) passes through the vena caval forearm
    e) the right vagus nerve supplies branches to the superficial cardiac plexus

40) Regarding the heart valves:
    a) the aortic valve usually has two semilunar cusps
    b) the pulmonary valve is at the level of the 3rd costal cartilage
    c) they do not contain elastic fibres
    d) the tricuspid valve has anterior, posterior and medial cusps
    e) the mitral valve cusps are bigger and thinner than those of the tricuspid valve

Thorax

Section 1 – Answer

1	C
2	E
3	B
4	D
5	D
6	D
7	B
8	C
9	C
10	D
11	B
12	A
13	E
14	C
15	B
16	D
17	A
18	E
19	B
20	C
21	E
22	E
23	D
24	A
25	E
26	C
27	E
28	A
29	D
30	B
31	B
32	A
33	B
34	C
35	D
36	D
37	C
38	C
39	A
40	B

Section 2

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1) With regard to intercostal spaces:
   a) the neurovascular bundle runs in the plane between external intercostal and internal intercostal muscles
   b) neurovascular structures lie in the order of nerve, artery, vein from above downwards
   c) the upper two spaces are supplied by the supreme intercostal artery
   d) the collateral branches of the intercostal artery and nerve run along the upper border of the rib that forms the lower boundary of the space
   e) the collateral branch of the intercostal nerve supplies skin over the space

2) Which is NOT USUALLY supplied by the left coronary artery?
   a) conus artery
   b) circumflex artery
   c) anterior interventricular artery
   d) anterior fibres of left bundle
   e) posterior fibres of left bundle

3) Which is NOT a surface marking of the pleura?
   a) right and left pleura meet each other in midline anteriorly at level of the sternal angle
   b) both cross the midclavicular line at the 6^{th} rib
   c) both cross the midaxillary line at the 10^{th} rib
   d) both cross the 12^{th} rib at the lateral border of erector spinae
   e) both pass under the 12^{th} costovertebral angle

4) Which of the following bronchi is called the epartenol bronchus?
   a) left superior bronchus
   b) left inferior bronchus

c) right superior bronchus
d) right middle bronchus
e) right inferior bronchus

5) The thoracic duct:
   a) is always related to the right side of the aorta
   b) receives no lymph drainage from the neck
   c) terminates in the superior vena cava
   d) may have two or three branches at its termination
   e) is entirely thoracic throughout its course

6) Which is NOT a surface marking of the lungs or fissures?
   a) hilum of each lung lies level with 5^{th}, 6^{th} and 7^{th} thoracic vertebrae
   b) lower border of the lungs lie two ribs higher than the pleural reflection
   c) the line of the 6^{th} rib is the marking for the oblique fissures
   d) horizontal fissure runs from the right 4^{th} costal cartilage horizontally to mid-axillary line
   e) anteromedial border of the left lung in the 5^{th} intercostal space lies at the apex of the heart

7) Regarding the diaphragm:
   a) it is active in both inspiration and expiration
   b) the aorta is transmitted through an opening in the left crus
   c) the left dome may ascend to the 5^{th} intercostal space
   d) the phrenic nerve branches run medially on its thoracic surface
   e) it receives its blood supply entirely from lower intercostal and subcostal arteries

8) With respect to the sensory innervation of the visceral pericardium, which of the following nerves predominantly provides sensory fibres?
   a) left vagus
   b) left phrenic
   c) left 4^{th} intercostal
   d) all of the above
   e) none of the above

9) The oesophagus is constricted at the following sites:
   a) where it is crossed by right main bronchus
   b) where it is crossed by the azygous vein
   c) where it is crossed by the left subclavian artery
   d) where it is crossed by the thoracic duct
   e) none of the above

10) The sino-atrial node is situated:
   a) on the right of the opening of the inferior vena cava
   b) within the interatrial septum
   c) at the opening of the coronary sinus
   d) just above the crista terminalis
   e) around the lower superior vena cava

11) A surface landmark which constitutes a guide to the gastro-oesophageal orifice is the:
   a) 7^{th} left costal cartilage
   b) left linea semilunaris

c) tip of the 9th left costal cartilage
d) left nipple
e) level of the 11th thoracic vertebra

12) Which does NOT form part of the left border of the cardiovascular silhouette on chest x-ray?
a) the arch of the aorta
b) the pulmonary trunk
c) the left atrium
d) the left auricle
e) the left ventricle

13) During expiration, the right diaphragm rises to:
a) 4th intercostal space
b) 5th intercostal space
c) 6th intercostal space
d) a level slightly lower than the left diaphragm
e) the same height as the central tendon

14) Which of the following is NOT true with respect to the ligamentum ateriosum?
a) it arises from the commencement of the left pulmonary artery
b) it joins the aorta at the level of the commencement of the brachiocephalic artery
c) the superficial part of the cardiac plexus lies anterior to it
d) the left recurrent laryngeal nerve hooks around it
e) the deep cardiac plexus lies to its right

15) Landmarks of the trachea are:
a) thyroid cartilage to sternal notch
b) hyoid bone to sternal angle –
c) cricoid cartilage to sternal angle
d) thyroid cartilage to sternal angle
e) cricoid cartilage to sternal notch

16) The oesophagus:
a) is supported inferiorly by a sling of fibres from the left crus of the diaphragm
b) has its narrowest part at the opening of the diaphragm
c) has a blood supply from inferior thyroid arteries, oesophageal branches of aorta and branches of left gastric artery
d) has no contact with thoracic vertebrae
e) is crossed on the right by the arch of the aorta and azygous vein

17) Regarding the phrenic nerves, all of the following are true, EXCEPT:
a) each nerve provides motor supply to own half of diaphragm, left phrenic also supply half of right crus
b) the phrenic nerve is supplied by its own pericardiophrenic artery which accompanies it
c) the right phrenic nerve is in contact with venous structures throughout its course
d) the left phrenic nerve passes to the inferior surface of diaphragm through muscle
e) arising mainly from C4 in the neck, the nerve passes behind the anterior scalene

18) Which of the following do not penetrate the diaphragm?
a) aorta
b) inferior vena cava
c) left phrenic nerve
d) right phrenic nerve

e) oesophagus

19) With regard to the thorax:
   a) pus behind the prevertebral fascia can gravitate to the posterior mediastinum
   b) mediastinal tumours tend to project more into the left hilum than the right
   c) pretracheal fascia blends with the pericardium anteriorly
   d) pus from the cervical tracheal region may gravitate to the middle mediastinum
   e) the arch of the aorta lies in the middle mediastinum

20) The oesophagus:
   a) contains smooth muscle in its upper third
   b) lies posterior to the left atrium
   c) is partly innervated by the phrenic nerve
   d) passes through the central tendon at the level of T10 vertebrae
   e) has no connective tissue attaching to the aorta

21) With regard to the thoracic wall:
   a) the intercostal vessels and nerves run between the external and internal intercostal muscles
   b) all intercostal nerves have anterior and lateral cutaneous branches
   c) the internal intercostals assist inspiration
   d) both the manubriosternal and xiphisternal joints are synovial with discs
   e) the upper ribs have 'pump-handle' movement NOT 'bucket handle' movement

22) Which of the following statements about the diaphragm is NOT true?
   a) the oesophageal opening is at the T10 level
   b) the aortic opening may also contain the azygous vein and thoracic duct
   c) the right dome is higher than the left
   d) the blood supply is from the pericardiophrenic artery
   e) the vena caval opening is at T8

23) With regard to the cutaneous innervation of the thorax and abdomen:
   a) above the 2nd rib, the skin is supplied by the cervical plexus (C4)
   b) loss of a single spinal segment will produce a sensory deficit
   c) it is supplied segmentally by the anterior primary rami of T1 to L1
   d) T8 supplies skin at the level of the umbilicus
   e) the lower eight thoracic nerves pass beyond the costal margin to supply the skin of the abdominal wall

24) With regard to the diaphragm, which is NOT true?
   a) in full expiration, the right dome ascends to the level of the nipple
   b) the central tendon lies at the level of the xiphisternal joint
   c) the longest fibres arise from the 9th costal cartilage
   d) the branches of the phrenic nerves run over the thoracic surface radially
   e) it is pierced by inferior vena cava at T8 level and by oesophagus at T10 level

25) The trachea:
   a) bifurcates at a variable level according to respiration
   b) is supplied by the superior thyroid arteries
   c) commences at C5 level
   d) is non elastic and is supported by cartilaginous rings
   e) is in contact with the recurrent laryngeal nerve on the right

26) Which is NOT located at the level of the lower border of T4 vertebra?

a) the most superior part of the arch of the aorta
b) azygous vein enters the superior vena cava
c) thoracic duct reaches the left side of the oesophagus as it ascends
d) ligamentum arteriosum
e) superficial and deep parts of the cardiac plexus

27) In the anatomical position, the heart:
a) has a right border comprised of right atrium and right ventricle
b) has an anterior (sternocostal) surface comprised of right atrium, right ventricle and a strip of left ventricle
c) has a posterior surface comprised of left atrium, four pulmonary veins and left ventricle
d) has an inferior (diaphragmatic) surface comprised of left atrium, inferior vena cava and right ventricle
e) all of the above are true

28) Which is NOT USUALLY supplied by the right coronary artery?
a) sinoatrial nodal artery
b) atrioventricular nodal artery
c) conus artery
d) right bundle of HIS
e) posterior part of the interventricular septum

29) With regard to lymphatic drainage in the thorax, which is NOT true?
a) the anterior intercostal spaces drain into parasternal nodes thence to brachiocephalic veins
b) mid-part of oesophagus drains to the paraaortic nodes beside the descending aorta
c) the lower posterior intercostal groups of nodes drain into cysterna chyli
d) the heart drains into the tracheobronchial nodes thence to mediastinal, lymph trunks
e) the mediastinal lymph trunks lie alongside the trachea

30) With regard to the oesophagus, which is NOT true?
a) the upper part is supplied by the recurrent laryngeal nerve
b) the upper third has skeletal muscle whereas the lower two thirds is smooth muscle
c) the narrowest part is where it passes through the diaphragm
d) oesophageal pain can be referred to the neck, arm and thoracic wall
e) pierces the diaphragm at the level of T10 vertebral body

31) With respect to the blood supply of the hearts, which answer is INCORRECT?
a) the left coronary artery and its branches are the main blood supply to the interventricular septum
b) the coronary sinus receives the great cardiac vein
c) anterior cardiac veins drain directly into the right atrium
d) the sinoatrial nodes is, in a majority of cases, supplied by the left coronary artery
e) the right coronary artery gives off a marginal branch at the inferior border of the heart

32) With regard to the phrenic nerve:
a) its fibres are exclusively motor
b) it is predominantly sensory
c) the right phrenic nerve lies anterior to the right lung root
d) it divides into anterior posterior and medial divisions on the thoracic surface of the diaphragm
e) it divides into anterior posterior and medial divisions on the abdominal surface of the diaphragm

33) Regarding the cardiac veins:
a) the great cardiac vein accompanies the posterior descending interventricular artery
b) the middle cardiac vein ends in the right atrium

c) the anterior cardiac vein ends in the right atrium
d) the small cardiac vein accompanies the circumflex branch of the left coronary artery
e) the oblique veins of the left atrium end in the left atrium

34) With regard to the intercostal neurovascular bundle:
a) it maintains a close association with the superior posterior aspect of its own rib
b) it travels in a neurovascular plane between external and internal muscle layers
c) the artery has a longer course around the body wall than the nerve
d) the nerve is always inferior to the artery
e) the vein may travel below the nerve

35) A needle inserted between the xiphoid process and 7th left intercostal cartilage for the purpose of pericardiocentesis passes through all the following structures EXCEPT:
a) central tendon of diaphragm
b) serous pericardium
c) rectus sheath
d) fibrous pericardium
e) pleura

36) The parietal pleura in an average sized adult male:
a) projects 3cm above the medial third of the upper surface of the clavicle
b) projects 2cm beyond the thoracic outlet
c) projects 1cm above the inner border of the first rib
d) does not project above the upper surface of the clavicle
e) none of the above

37) Regarding the chest wall:
a) the intercostal artery runs between the external and internal intercostal muscles
b) the muscles of outer thoracic wall layer are serratus posterior superior, serratus posterior inferior only
c) the 5th posterior intercostal vein, artery and nerve run on the lower border of the 5th rib
d) the order of structures in the intercostal space are artery, vein, nerve
e) the 1st intercostal nerve supplies skin over the anterior chest wall

38) The azygous vein:
a) usually enters the right subclavian vein
b) only drains the middle third of the oesophagus
c) only drains part of the oesophagus and bronchial vein
d) passes forward anteriorly medial to the oesophagus from T3
e) arches over the right bronchus at left of T4 vertebra

39) The trachea:
a) starts at the thyroid cartilage
b) bifurcates into the right and left bronchi behind the manubrium – sternal angle
c) passes through the posterior mediastinum
d) is not supplied by the recurrent laryngeal nerve
e) blood supply is from the superior thyroid artery

40) In the thorax:
a) the inlet is bounded by the scapulae, clavicles and sternum
b) the inferior border of the superior mediastinum is level with T4
c) the right phrenic nerve passes through the oesophageal opening

d) the left phrenic nerve passes through the oesophageal opening
e) the thoracic duct passes through the canal opening

41) The sternoclavicular joint:
a) is a simple synovial joint
b) is more likely to dislocate posteriorly than anteriorly
c) is supplied by the cervical plexus
d) undergoes weak active rotation due to the action of subclavius
e) owes most of its strength to a single band of fibres joining clavicle to sternal notch and manubrium

42) In the thorax:
a) the lungs are supported at the hilum by the pulmonary ligament
b) the right lung horizontal fissure lies at the 4^{th} intercostal space
c) the parietal and visceral pleura have rich sensory innervation
d) the hilum of the lung lies at the level of theT7-8 vertebra
e) the dome of the lung rises above the medial one third of the clavicle

43) In the mediastinum:
a) the pulmonary trunk divides anterior to the left main bronchus
b) the pulmonary trunk divides anterior to the carina
c) the left and right lung inferior lobes each have four segments
d) the upper lobe of the right lung reaches the 5^{th} costochondral junction anteriorly in the rest position
e) the left lung inferior lobe has five segments and the right has four

44) In the coronary circulation:
a) the commonest arterial pattern is that of 'left dominance'
b) the sinoatrial nodal artery arises from the left coronary artery in almost half the population
c) the anterior cardiac veins drain the left ventricle
d) the coronary sinus drains into the left atrium
e) the right coronary artery arises from the posterior aortic sinus

45) The aortic opening in the diaphragm transmits:
a) oesophageal-gastric lymphatics
b) branches of the left gastric artery
c) the left phrenic nerve
d) posterior vaginal plexus
e) azygous vein

46) The azygous vein:
a) passes through the oesophageal hiatus of the diaphragm
b) crosses over the right bronchus at T6
c) drains into the left brachiocephalic vein
d) drains the lower eight intercostal spaces
e) drains the inferior third of the oesophagus

47) In the deepest intercostal muscle layer:
a) the subcostals line the rib cage at the side
b) fibres of the innermost intercostal group only span one intercostal space
c) fibres of the subcostals group only span one intercostal space
d) transversus thoracis fibres only arise from 2^{nd} to 6^{th} costal cartilages
e) the border of the subcostal muscle group meets the innermost intercostal groups, overlapping slightly so the intercostal artery can slip between them to join the intercostal nerve

Section 2

Answers

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