

# THE GOOFY ANATOMIST QUIZZES

## 6. HEART AND MEDIASTINUM

Q1. Which of the following lie in the posterior mediastinum?

- A. Thymus, brachiocephalic veins, trachea.
- B. Oesophagus, descending aorta, thoracic duct.
- C. Heart, thymus, sternopericardial ligaments.
- D. Superior vena cava, aortic arch and trachea.

Q2. The sternal plane extends between...

- A. The sternal symphysis and the IVD of T4/T5.
- B. The sternal symphysis and the IVD of T3/T4.
- C. The sternal symphysis and the IVD of T5/T6.
- D. The sternal symphysis and the IVD of T2/T3.

Q3. Blood from the right ventricle...

- A. Drains from the left atrium.
- B. Leaves via the aorta.
- C. Leaves via the pulmonary trunk.
- D. is the chamber of the heart that receives the coronary sinus.

Q4. 'Myogenic' means...

- A. The heart depends on the medulla for generating its action potentials.
- B. The lungs generate their own rhythm of ventilation.
- C. The atrioventricular node is the main rhythm generator of the heart.
- D. The sinoatrial node generates the action potentials of the heart.

Q5. The pulmonary arteries...

- A. Travel from the heart to the lungs.
- B. Travel from the lungs to the heart.
- C. Travel from the lungs to the peripheral tissues.
- D. Travel from the peripheral tissues to the lungs.

Q6. Which structures form the right border of the heart?

- A. The right atrium, right ventricle and left ventricle.
- B. The right ventricle mainly.
- C. The right atrium mainly.
- D. The left atrium mainly.

Q7. The apex of the heart is found...

- A. At the inferior tip of the left ventricle.
- B. At the superior tip of the left ventricle.
- C. At the inferior tip of the right atrium.
- D. At the superior tip of the right atrium.

Q8. The pericardiophrenic ligament stretches between which structures?

- A. The pericardium and the sternum.
- B. The pericardium and the heart.
- C. The pericardium and the diaphragm.
- D. The pericardium and the anterior thoracic wall.

Q9. Where is the pericardial cavity located?

- A. Between the visceral pericardium and the epicardium.
- B. Between the visceral pericardium and the parietal pericardium.
- C. Between the visceral pericardium and the fibrous pericardium.
- D. Between the fibrous pericardium and serous pericardium.

Q10. The parietal pericardium...

- A. Receives a somatic sensory nerve supply via the phrenic nerve, so it can detect temperature and pain.
- B. Receives a somatic sensory nerve supply via the vagus nerve, so it can detect temperature and pain.
- C. Receives a visceral sensory nerve supply via the phrenic nerve, so it can detect only stretch.
- D. Receives a visceral sensory nerve supply via the vagus nerve, so it can detect only stretch.

Q11. Which of the following is not a 'great vessel'?

- A. Pulmonary trunk.
- B. Superior vena cava.
- C. Inferior vena cava.
- D. Brachiocephalic trunk.

Q12. Which of the following vessel(s) lie(s) most anteriorly in the thoracic cavity?

- A. Pulmonary trunk.
- B. Descending aorta.
- C. Pulmonary veins.
- D. Superior vena cava.

Q13. The transverse pericardial sinus lies...

- A. Posterior to the ascending aorta and pulmonary trunk.
- B. Posterior to the superior vena cava and inferior vena cava.
- C. Posterior to the pulmonary veins.
- D. Anterior to the ascending aorta but posterior to the pulmonary trunk.

Q14. Which coronary artery branch(es) supplies the sinoatrial node in most people?

- A. Right conus artery.
- B. Right marginal artery.
- C. Posterior interventricular artery.
- D. Atrial branches of the right coronary artery.

Q15. Which coronary artery branch (es) supplies the atrioventricular node?

- A. Posterior interventricular artery.
- B. Left marginal artery.
- C. Left atrial branch.
- D. Right marginal artery.

Q16. Which of the following vessels run in the coronary sulcus?

- A. Right coronary artery, right marginal branch, posterior interventricular artery.
- B. Left conus artery, left marginal artery.
- C. Right coronary artery, left coronary artery, left circumflex artery.
- D. Anterior interventricular artery, posterior interventricular artery, right circumflex artery.

Q17. Which of the following statements is true?

- A. The coronary sinus drains all of the veins of the heart.
- B. The small cardiac vein drains into the middle cardiac vein, which drains into the great cardiac vein.
- C. The coronary sinus drains into the left atrium.
- D. The coronary sinus drains into the right atrium.

Q18. Regarding the following structures is not present in the right atrium?

- A. Right auricle.
- B. Infundibulum.
- C. Fossa ovalis.
- D. Sinus venarum.

Q19. What is the name of the roughened muscle fibres present in the part of the atrial wall are given what name?

- A. Papillary muscles.
- B. Musculi pectinati.
- C. Fossa ovalis.
- D. Trabeculae carneae.

Q20. Which of the following vessels do not drain into the right atrium?

- A. Superior vena cava.
- B. Inferior vena cava.
- C. Coronary sinus.
- D. Pulmonary veins.

Q21. What is the fossa ovalis?

- A. The fingerprint-like indent in the atrial walls that is formed from the closure of the foramen ovale.
- B. The opening of the coronary sinus into the right atrium.
- C. The gap in the atrial wall that will become the foramen ovale upon closure.
- D. The finger-print like indent in the atrial wall that houses the sinoatrial node.

Q22. Which of the following statements is false regarding the valves of the heart?

- A. The bicuspid valve is present on the right side of the heart.
- B. The tricuspid valve is present on the right side of the heart.
- C. There are three cusps making up the aortic valve.
- D. There are three cusps making up the pulmonary valve.

Q23. The right ventricle is divided from the right atrium by the...

- A. Bicuspid valve.
- B. Tricuspid valve.
- C. Aortic valve.
- D. Pulmonary valve.

Q24. What is the function of the anterior papillary muscle on the right?

- A. Close the anterior cusp of the bicuspid valve.
- B. Close the anterior cusp of the pulmonary valve.
- C. Prevent backflow into the pulmonary trunk.
- D. Prevent the inversion of the anterior cusp of the tricuspid valve.

Q25. What is the function of the moderator band in the right ventricle?

- A. Conduct the cardiac action potential to the posterior papillary muscle.
- B. Conduct the cardiac action potential to the anterior papillary muscle.
- C. Conduct the cardiac action potential to the septal papillary muscle.
- D. Conduct the cardiac action potential through the interventricular septum.

Q26. What is the name of the strands that connect the papillary muscles and valve cusps in the ventricles?

- A. Chordae tendineae.
- B. Trabeculae carneae.
- C. Musculi pectinati.
- D. Cusp bands.

Q27. Which of the following statements is true concerning the left ventricle?

- A. It ejects its blood into the pulmonary trunk.
- B. It has a thicker muscular wall to pump blood through the systemic circulation.
- C. Has the tricuspid valve protecting the left atrioventricular orifice.
- D. Has underdeveloped trabeculae carneae.

Q28. The four valves of the heart...

- A. Are supported by left and right fibrous trigones.
- B. Are forcefully closed shut by the action of the papillary muscles.
- C. All have three cusps.
- D. Are supported by a bony skeleton embedded deep in the myocardium.

Q29. The apex of the heart has what surface landmark?

- A. 2<sup>nd</sup> left costal cartilage.
- B. 3<sup>rd</sup> right costal cartilage.
- C. 6<sup>th</sup> right costal cartilage.
- D. 5<sup>th</sup> left intercostal space.

Q30. In transposition of the great arteries...

- A. The pulmonary veins and pulmonary arteries leave from the incorrect ventricles.
- B. The ascending aorta and pulmonary trunk leave from the incorrect ventricles.
- C. The coronary arteries supply the incorrect sides of the heart.
- D. The ascending aorta travels to the lungs, while the pulmonary trunk travels to the peripheral tissues.

Q31. Which of the following is a differentiating feature between angina pectoris and a myocardial infarction?

- A. Pain eases with rest during an angina attack. Pain is persistent with an MI.
- B. Angina involves the complete blockage of a blood vessel in the brain. An MI involves the complete blockage of a blood vessel in the heart.
- C. More cells become ischaemic during an angina attack compared to an MI.
- D. Angina isn't caused by atherosclerosis, but an MI is caused by atherosclerosis.

Q32. What are the three layers of the heart?

- A. Epicardium, myocardium and endocardium.
- B. Ectocardium, myocardium and endocardium.
- C. Epicardium, Ectocardium and endocardium.
- D. Ectocardium, myocardium, epicardium.

Q33. The correct order for the electrical conduction of the heart is...

- A. SA node, AV node, moderator band, AV bundle.
- B. SA node, AV node, AV bundle, bundle branches, moderator band, Purkinje fibres.
- C. AV node, SA node, AV bundle, moderator band, Purkinje fibres.
- D. AV node, SA node, Purkinje fibres, AV bundle, bundle branches.

Q34. What is a myocardial infarction?

- A. Death of the myocardium due to a blood clot in a coronary artery.
- B. A blood clot that arises in the pulmonary arteries that travels to the lungs.
- C. A build-up of blood in the pericardial cavity.
- D. Chest pain on exercise only.

## Answers

Q1. Which of the following lie in the posterior mediastinum?

A. Thymus, brachiocephalic veins, trachea.

**B. Oesophagus, descending aorta, thoracic duct.**

C. Heart, thymus, sternopericardial ligaments.

D. Superior vena cava, aortic arch and trachea.

**The key to answering this question correctly is checking to see if all three structures in each answer are in the same mediastinal subdivision. For example, C is wrong because the heart and sternopericardial ligaments lie in the middle mediastinum, while the thymus lies in the anterior mediastinum.**

Q2. The sternal plane extends between...

**A. The sternal symphysis and the IVD of T4/T5.**

B. The sternal symphysis and the IVD of T3/T4.

C. The sternal symphysis and the IVD of T5/T6.

D. The sternal symphysis and the IVD of T2/T3.

Q3. Blood from the right ventricle...

A. Drains from the left atrium.

B. Leaves via the aorta.

**C. Leaves via the pulmonary trunk.**

D. is the chamber of the heart that receives the coronary sinus.

**Right ventricle → pulmonary trunk → pulmonary arteries → lungs.**

Q4. 'Myogenic' means...

A. The heart depends on the medulla for generating its action potentials.

B. The lungs generate their own rhythm of ventilation.

C. The atrioventricular node is the main rhythm generator of the heart.

**D. The sinoatrial node generates the action potentials of the heart.**

**Can't be A, because the heart generates its own action potential – the medulla only influences the activity of the heart. Can't be B, because the lungs are not myogenic – the medulla initiates their movement by generating nerve impulses in the respiratory centre. Can't be C, because the SA node lies in the right atrium and is responsible for generating the action potential – the AV node delays and conducts the action potential.**

Q5. The pulmonary arteries...

- A. Travel from the heart to the lungs.**
- B. Travel from the lungs to the heart.
- C. Travel from the lungs to the peripheral tissues.
- D. Travel from the peripheral tissues to the lungs.

**Arteries travel Away from the heart, Veins Veer back.**

Q6. Which structures form the right border of the heart?

- A. The right atrium, right ventricle and left ventricle.
- B. The right ventricle mainly.
- C. The right atrium mainly.**
- D. The left atrium mainly.

**Remember the angle at which the heart lies...the right atrium mainly forms the right border, and the right ventricle mainly forms the inferior border.**

Q7. The apex of the heart is found...

- A. At the inferior tip of the left ventricle.**
- B. At the superior tip of the left ventricle.
- C. At the inferior tip of the right atrium.
- D. At the superior tip of the right atrium.

Q8. The pericardiophrenic ligament stretches between which structures?

- A. The pericardium and the sternum.
- B. The pericardium and the heart.
- C. The pericardium and the diaphragm.**
- D. The pericardium and the anterior thoracic wall.

**Easy to guess – remember that ‘phrenic’ generally refers to the diaphragm.**



Q9. Where is the pericardial cavity located?

- A. Between the visceral pericardium and the epicardium.
- B. Between the visceral pericardium and the parietal pericardium.**
- C. Between the visceral pericardium and the fibrous pericardium.
- D. Between the fibrous pericardium and serous pericardium.

**As with the pleural cavity...the pericardial cavity is found between the visceral and parietal layers and contains a little fluid.**

Q10. The parietal pericardium...

- A. Receives a somatic sensory nerve supply via the phrenic nerve, so it can detect temperature and pain.**
- B. Receives a somatic sensory nerve supply via the vagus nerve, so it can detect temperature and pain.
- C. Receives a visceral sensory nerve supply via the phrenic nerve, so it can detect only stretch.
- D. Receives a visceral sensory nerve supply via the vagus nerve, so it can detect only stretch.

**Remember that the fibrous and parietal pericardial layers have somatic sensory innervation from the phrenic nerve. Somatic sensory innervation means they can detect temperature, pain and pressure. The visceral pericardial layer receives autonomic sensory fibres (e.g. from vagus nerve), so it can only detect stretch.**

Q11. Which of the following is not a 'great vessel'?

- A. Pulmonary trunk.
- B. Superior vena cava.
- C. Inferior vena cava.
- D. Brachiocephalic trunk.**

**The ascending aorta is a great vessel, but the brachiocephalic trunk is a branch of the aortic arch, so is not considered a great vessel.**

Q12. Which of the following vessel(s) lie(s) most anteriorly in the thoracic cavity?

- A. Pulmonary trunk.**
- B. Descending aorta.
- C. Pulmonary veins.
- D. Superior vena cava.

**At the point where these vessels enter/leave the heart, the pulmonary trunk is the most anteriorly located.**

Q13. The transverse pericardial sinus lies...

- A. Posterior to the ascending aorta and pulmonary trunk.**
- B. Posterior to the superior vena cava and inferior vena cava.
- C. Posterior to the pulmonary veins.
- D. Anterior to the ascending aorta but posterior to the pulmonary trunk.

**The transverse sinus lies posterior to the ascending aorta and pulmonary trunk, but anterior to the superior vena cava.**

Q14. Which coronary artery branch(es) supplies the sinoatrial node in most people?

- A. Right conus artery.
- B. Right marginal artery.
- C. Posterior interventricular artery.
- D. Atrial branches of the right coronary artery.**

**The sinoatrial node is in the right atrium, so this is the correct answer.**

Q15. Which coronary artery branch (es) supplies the atrioventricular node?

- A. Posterior interventricular artery.**
- B. Left marginal artery.
- C. Left atrial branch.
- D. Right marginal artery.

**This artery runs in a fairly central position, so you would expect it to supply the AV node, which lies in the interatrial septum. There could well be an AV nodal artery specifically arising from the posterior interventricular artery/continuation of the RCA.**

Q16. Which of the following vessels run in the coronary sulcus?

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- D. The coronary sinus drains into the right atrium.**

**Remember that the right atrium is receiving all of the deoxygenated blood from the body's tissues, so even if you can't remember the answer in an exam, the right atrium is a good guess.**

Q18. Regarding the following structures is not present in the right atrium?

- A. Right auricle.
- B. Infundibulum.**
- C. Fossa ovalis.
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**The infundibulum is found in the right ventricle.**

Q19. What is the name of the roughened muscle fibres present in the part of the atrial wall are given what name?

- A. Papillary muscles.
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**In the atrium, these are the musculi pectinati. In the ventricle, the roughened muscular fibres are more pronounced and are called the trabeculae carneae.**

Q20. Which of the following vessels do not drain into the right atrium?

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- B. Inferior vena cava.
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- D. Pulmonary veins.**

**These drain into the left atrium.**

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- A. The fingerprint-like indent in the atrial walls that is formed from the closure of the foramen ovale.**
- B. The opening of the coronary sinus into the right atrium.
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- D. The finger-print like indent in the atrial wall that houses the sinoatrial node.

**The foramen ovale essentially becomes the fossa ovalis.**

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- A. The bicuspid valve is present on the right side of the heart.**
- B. The tricuspid valve is present on the right side of the heart.
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**Tricuspid is on the Right.**

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C. Has the tricuspid valve protecting the left atrioventricular orifice.

D. Has underdeveloped trabeculae carneae.

**The left ventricle is pumping blood into the aorta, which will distribute oxygenated blood to all of the body's peripheral tissues.**

Q28. The four valves of the heart...

**A. Are supported by left and right fibrous trigones.**

B. Are forcefully closed shut by the action of the papillary muscles.

C. All have three cusps.

D. Are supported by a bony skeleton embedded deep in the myocardium.

**The answer is not B because when the papillary muscles contract, they are NOT forcefully closing the cusps of the valves. The cusps are actually closed by the increase in ventricular pressure. The papillary muscles are actually preventing inversion of the cusps when blood is pushed against them during ventricular systole.**

Q29. The apex of the heart has what surface landmark?

A. 2<sup>nd</sup> left costal cartilage.

B. 3<sup>rd</sup> right costal cartilage.

C. 6<sup>th</sup> right costal cartilage.

**D. 5<sup>th</sup> left intercostal space.**

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- B. The ascending aorta and pulmonary trunk leave from the incorrect ventricles.**
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**TGA is simply the wrong (opposite) vessel coming out of each ventricle.**

Q31. Which of the following is a differentiating feature between angina pectoris and a myocardial infarction?

- A. Pain eases with rest during an angina attack. Pain is persistent with an MI.**
- B. Angina involves the complete blockage of a blood vessel in the brain. An MI involves the complete blockage of a blood vessel in the heart.
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- D. Angina isn't caused by atherosclerosis, but an MI is caused by atherosclerosis.

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- B. Ectocardium, myocardium and endocardium.
- C. Epicardium, Ectocardium and endocardium.
- D. Ectocardium, myocardium, epicardium.

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- C. AV node, SA node, AV bundle, moderator band, Purkinje fibres.
- D. AV node, SA node, Purkinje fibres, AV bundle, bundle branches.

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- B. A blood clot that arises in the pulmonary arteries that travels to the lungs.
- C. A build-up of blood in the pericardial cavity.
- D. Chest pain on exercise only.

**Can't be B, because this is more like a pulmonary embolism. Can't be C, because this is cardiac tamponade. Can't be D, because this is angina pectoris.**