AFYA UNLIMITED MCQs

CARDIOVASCULAR ANATOMY MCQ`S

1.which of the following applies only to the structure of the venous wall, and not to both arteries and veins?

a. It is composed of three layers of tissue.

b. The inner layer is called the tunica intima.

c. The endothelium covers the valves built into the vessel wall.

d. The outer layer, the tunica adventitia, is fibrous for protection.

2. Which structure anchors the av valves to the ventricular walls?

A. Trabeculae carneae.

B. Chordae tendineae.

C. Papillary muscles.

D. Moderator band

3. An artery that provides the only blood supply to a tissue is called an)?

a. End artery.

b. Anastomotic artery.

c. Shunt.

d. Arteriole.

4. Why does blood from the hepatic portal vein flow through the liver in sinusoids rather than in conventional capillaries?

a. Their leaky walls allow bile and other enzymes to be secreted into the blood.

b. Their large diameter ensures that blood flow is speeded up to prevent pooling and oedema.

c. Their leaky walls allow the liver cells to extract glucose and other products of digestion Efficiently.

d. Their large diameter ensures that red blood cells can deliver increased amounts of oxygen

To the metabolically active liver cells.

5. Which of the following is described as a resistance vessel?

a. The aorta.

b. An arteriole.

c. A capillary.

d. A vein.

6.the coronary arteries arise from the?

A. Pulmonary trunk

B. Left atrium

C. Aortic sinuses

D. Superior vena cava

7. Which of the following statements is true of the capillary?

a. Its wall has a single layer of endothelial cells overlying a thin layer of smooth muscle.

b. Red blood cells do not normally pass through the capillary wall.

c. Plasma proteins exchange freely across the capillary wall.

d. The smallest capillaries have an average diameter of about 20 microns.

8. Baroreceptors involved in cardiovascular regulation are located in the?

A. Left atrium.

B. Cerebral cortex.

C. Carotid sinus and aortic arch

D. Pulmonary veins

9. Exchange of substances in the tissues is determined by the opposing forces across the capillary wall. Which of the following is true?

a. Hydrostatic pressure at the arterial end of the capillary is about 5 kpa, and at the venous

End this increases to 7 kpa.

b. Osmotic pressure pulls fluid into the bloodstream and is the main reason why hydrostatic Pressure increases as blood flows through the capillary.

c. Hydrostatic pressure, also referred to as blood pressure, is due mainly to the presence of Plasma proteins in the blood.

d. Osmotic pressure remains the same, at about 3 kpa, as blood flows from the arterial end To the venous end of the capillary.

10. The name given to excess fluid in the tissue spaces is:

a. Lymph.

b. Oedema.

c. Interstitial fluid.

d. Tissue fluid.

11. The base of the heart is associated with which structure?

a. The diaphragm.

b. The 5th costal cartilage.

c. The xiphoid sternum.

d. The origin of the aorta.

12. The mediastinum contains:

a. The diaphragm.

b. The lungs.

c. The heart.

d. The sternum.

13. Which of the following is true of the myocardium?

a. The cells are unbranched and linked by intercalated discs.

b. Each muscle cell is individually supplied by a separate nerve fiber.

c. It contains a network of specialized conducting fibers called sinoatrial fibers.

d. It is the thickest layer of the heart wall and secretes atrial natriuretic peptide (anp).

14. The visceral pericardium:

A. Secretes pleural fluid.

B. Is firmly attached to the myocardium.

C. Lines the heart chambers.

D. Is a fibrous, protective layer.

15. Venous return to the heart is assisted by:

A. High venous pressure

B. Skeletal muscle pump

C. Elastic recoil of the arteries

D. Decreased thoracic pressure during expiration

16. The atrioventricular valves:

A. Are secured to the interior of the ventricular walls with chordae tendinae.

B. Conduct electrical impulses between the atria and the ventricles.

C. Both have three cusps, or flaps.

D. Are closed during the p wave on the ecg.

17. Narrowing of an atrioventricular valve is called:

A. Incompetence.

B. Regurgitation.

C. Stenosis.

D. Murmurs.

18. The sinoatrial node lies:

A. At the origin of the aorta.

B. In the interventricular septum.

C. Close to the opening of the superior vena cava.

D. Immediately above the right atrioventricular valve.

19. What proportion of the left ventricular stroke volume passes into the coronary arteries to supply the myocardium?

A. 25%.

B. 15%.

C. 5%.

D. 20%.

20. What is the average heart rate in a healthy adult?

A. 40–60 beats per minute (bpm).

B. 60–80 bpm.

C. 80–100 bpm.

D. 100–120 bpm

21. What is the definition of sinus tachycardia?

A. Heart rate over 100 bpm but normal rhythm.

B. Heart rate over 120 bpm but normal rhythm.

C. Heart rate over 100 bpm but with an identified ecg abnormality.

D. Heart rate over 120 bpm with an intermittent ecg abnormality.

22. The atrioventricular node:

A. Sets the normal heart rate.

B. Generates electrical signals, but at a faster rate than the sinoatrial node.

C. Controls blood flow between the atria and the ventricles.

D. Acts as the heart's secondary pacemaker.

23. Which stage of the cardiac cycle normally lasts the longest?

A. Complete cardiac diastole.

B. Ventricular contraction.

C. Atrial systole.

D. Atrial contraction.

24. A 68-year-old man develops complete heart block, which structure must be impaired for the ventricles to beat independently of the atria?

A. Sa node

B. Av node

C. Purkinje fibers

D. Bachmann`s bundle.

25. A 45-year-old woman presents with chest pain and ST-elevation in leads ii, iii, and avf. The affected artery most likely supplies which structure?

A. Right ventricles.

B. Left atrium

C. Pulmonary trunk

D. Descending aorta

26. The first heart sound, 'lub', corresponds to:

A. Closure of the aortic valve.

B. Opening of the pulmonary valve.

C. Closure of the atrioventricular valves.

D. Ejection of blood into the aorta.

27. Which is the correct order in which the electrical signal in the heart triggers contraction?

A. Sinoatrial node, atrioventricular node, purkinje fibers, right bundle branch.

B. Atrioventricular node, bundle of his, left bundle branch, purkinje fibers.

C. Sinoatrial node, atrial myocardium, right bundle branch, atrioventricular node.

D. Atrioventricular node, atrial myocardium, left bundle branch, purkinje fibers.

28. Which of the following is generated by ventricular excitation on an ECG recording?

A. P wave.

B. T wave.

C. P-r interval.

D. QRS complex.

29. What is heart block?

A. Obstruction of blood flow anywhere within the heart chambers.

B. Impairment of the pumping action of the heart, e.g., by cardiac tamponade.

C. Interference with impulse conduction between the atria and the ventricles.

D. Reduced contractility of the heart muscle, e.g., following myocardial infarction.

30. The systemic blood pressure recorded during ventricular contraction is called the:

A. Systolic pressure.

B. Diastolic pressure.

C. Pulse pressure.

D. Mean arterial pressure.

31. Which of the following is true of complete cardiac diastole?

A. The atria are filling but the atrioventricular valves are shut, so the ventricles are not.

B. The atria are filling and blood is draining by gravity into the ventricles.

C. Neither the atria nor the ventricles are filling because the pressure in the heart chambers

Is too high at this point.

D. The atria are fully filled already and waiting for the next heartbeat in order to contract And empty into the ventricles.

32. Which of the following describes stroke volume?

A. The volume of blood ejected by the contracting ventricle.

B. Heart rate multiplied by end-diastolic volume.

C. The volume of blood in the ventricle immediately before contraction.

D. The systolic pressure minus the diastolic pressure.

33. Which of the following is true of blood vessel diameter?

A. It is regulated by smooth muscle in the tunica adventitia.

B. It is controlled mainly by sympathetic nerves of the autonomic nervous system.

C. The smooth muscle of the blood vessel wall is regulated by the cardiovascular center in The hypothalamus of the brain.

D. Relaxation of vascular smooth muscle increases peripheral resistance.

34. During cardiac catheterization, a clot lodges at the opening of the right coronary artery. Which part of the conduction system is mainly at risk.

A. Av node

B. Sa node

C. Purkinje system

D. Left bundle branch

35.in systemic hypertension, which chamber of the heart is most likely to fail?

A. Left atrium.

B. Right atrium.

C. Left ventricle.

D. Right ventricle.

36. Which of the following statements regarding parasympathetic stimulation of the heart is correct?

A. It releases the hormone adrenaline, increasing heart rate.

B. The heart has no parasympathetic nerve endings, and control of heart activity is under Sympathetic control.

C. It is less important than emotional responses in regulating heart rate.

D. Parasympathetic supply to the heart is via release of acetylcholine from the vagus nerve.

37. A stab wound penetrates the 5th intercostal space at the mid-clavicular line. Which structure is most likely damaged?

A. Right ventricle

B. Left ventricle

C. Right atrium

D. Aortic arch.

38. Which of the following arteries does not arise from the aortic arch?

A. Left subclavian artery.

B. Right common carotid artery.

C. Left common carotid artery.

D. Brachiocephalic artery.

39. Which important vein is formed by the union of the right and left brachiocephalic veins?

A. Jugular vein.

B. Carotid vein.

C. Superior vena cava.

D. Subclavian vein.

40. A 22-year-old athlete has an enlarged left ventricle with increased stroke volume but normal heart rate. What explains the increased cardiac output?

A. Increased afterload

B. Increased end-systolic volume

C. Increased end-diastolic volume

D. Decreased contractility

41. The pulse palpable in the wrist is felt from the:

A. Ulnar artery.

B. Carpal artery.

C. Superficial palmar arch.

D. Radial artery.

42. The circulus arteriosus (Circle of Willis):

A. Is a complete circular channel of arteries lying on the upper surface of the brain.

B. Provides an important arrangement of anastomotic arteries to ensure constant blood supply to the brain.

C. Is supplied by arteries including the temporal artery and the internal carotid arteries.

D. Supplies the cerebral cortex and ventricles, but not the deeper structures of the brain.

43. The superior sagittal sinus drains blood from the superior part of the brain directly into:

A. The right transverse sinus.

B. The inferior sagittal sinus.

C. The straight sinus.

D. The sagittal sinus.

44. Which of the following is an unpaired artery?

A. Radial artery.

B. Internal carotid artery.

C. Mesenteric artery.

D. Gastric artery.

45. The cystic vein drains the:

A. Bladder.

B. Ovary.

C. Gall bladder.

D. Alveoli.

46. The fibular artery is a branch of the:

A. Popliteal artery.

B. Femoral artery.

C. Dorsalis pedis artery.

D. Posterior tibial artery.

47. A 38-year-old woman suffers a deep vein thrombosis that embolizes to the lungs. Where is the clot most likely to lodge?

A. Left pulmonary vein

B. Right pulmonary artery

C. Coronary artery

D. Pulmonary capillaries of the right lung

48. The layer of arteries responsible for vasoconstriction is the:

A. Tunica media

B. Tunica externa

C. Tunica intima

D. Adventitia

49. In the fetal circulation, the ductus arteriosus:

A. Shunts blood from the pulmonary artery into the aorta, bypassing the fetal lungs.

B. Bypasses the fetal liver and delivers blood from the umbilical vein directly into the fetal Inferior vena cava.

C. Shunts blood from the right atrium into the left atrium, bypassing the fetal lungs.

D. Bypasses the fetal intestines and delivers blood from the umbilical vein directly into the Fetal inferior vena cava.

50. The azygos and hemiazygos veins drain which body cavity?

A. The thoracic cavity.

B. The cranial cavity.

C. The abdominal cavity.

D. The pelvic cavity.

51. Which tissue is present in large amounts in the walls of the aorta but not in, for example, the digital arteries?

A. Smooth muscle.

B. Fibrous tissue.

C. Single-cell thick endothelium.

D. Elastic tissue.

52. In the healthy, older heart:

A. The fibrous skeleton softens, giving the heart less support.

B. The ventricles are usually larger than in the younger heart, compensating for reduced contractility.

C. The response to adrenaline and noradrenaline is generally more marked, predisposing to Heart failure.

D. It is not possible to improve cardiac function with regular exercise.

53. In fallot's tetralogy:

A. The openings to the pulmonary veins are stenosed.

B. There is usually an atrio septal defect.

C. The origin of the aorta is displaced to the left.

D. Right ventricular hypertrophy is usually evident.

54. Varicose veins are due to:

A. Aneurysm.

B. Incompetent valves.

C. Venous sclerosis.

D. Venous thrombosis.

55. Which blood vessel links the gastrointestinal tract and the liver?

A. The hepatic vein.

B. The hepatic artery.

C. The hepatic portal vein.

D. The hepatic mesenteric artery.

56.which one of the following is not the great vessels of the heart?

A. Pulmonary arteries

B. Coronary arteries

C. Superior vena cava

D. Pulmonary veins

57. The most common site of taking blood samples is the?

A. Brachial vein.

B. Ulnar vein

C. Median cubital vein

D. Brachial artery

58. During the qt interval of the ecg, the:

A. Atria contract and begin to relax

B. Atria relax

C. Ventricles contract and begin to relax

D. Ventricles relax

59.cardiac muscle tissue is characterized by all of these except:

A. Numerous large mitochondria

B. Long, multinucleated, cylindrical cells.

C. Striations

D. Intercalated discs

60.the first heart sound is associated with?

A. Pulmonary semilunar and tricuspid valves closing during ventricular diastole

B. Both semilunar valves closing during ventricular diastole.

C. Aortic semilunar and bicuspid valves closing during ventricular systole

D. Both atrioventricular valves closing during ventricular systole.

61. The frank- starling law of the heart states that:

A. The volume of blood that enters the heart during diastole directly affects the force of contraction at systole

B. Each period of systole must be followed by an equal period of diastole

C. The presence of positive inotropic substances increases myocardial contractility

D. A reduction in the body temperature results in lowered heart rate.

62. Which of the following occurs during that portion of the ekg designated as the p wave?

A. High pressure in the aorta and pulmonary trunk open the atrioventricular valves

B. Ventricular myocardium repolarizes

C. High pressure in the ventricles opens the atrioventricular valves

D. Atrial myocardium depolarizes.

63. What substances prevents friction when the heart contracts?

A. Blood in the heart

B. Fluid outside the pericardium

C. Fluid in the pericardial cavity

D. Surfactant within the myocardium

64. During exercise, increased muscle contraction helps return more blood to the heart. This would lead to?

A. Increased stroke volume

B. Increased heart rate

C. Decreased stroke volume

D. Decreased heart rate.

65.what physical feature of large systemic arteries (resistance vessels) makes them relatively more responsive to changes in the intracellular calcium concentration?

A. Thick tunica media

B. Absent tunica media

C. Thick tunica intima

D. Absent tunica intima

66.what structure in the heart wall prevents the atrioventricular valves from opening up into the atria?

A. Papillary muscles

B. Auricles

C. Interventricular septum

D. Endocardium.

67. The t-wave on ecg represents?

A. Atrial depolarization

B. Atrial repolarization

C. Ventricular repolarization

D. Ventricular depolarization

68. Identify the process that allows for the movement of fluid into the capillary at its venous end.

A. Active transport

B. Diffusion

C. Filtration

D. Osmosis.

69.the vasomotor center that controls the diameter of the blood vessels is located in the?

A. Medulla oblongata

B. Pons

C. Cerebrum

D. Cerebellum

70.identify the blood vessel that branch the ascending aorta.

A. Bronchial arteries

B. Brachiocephalic, left common carotid and left subclavian arteries

C. Right vertebral artery, superior vena cava and coronary sinus

D. Left and right coronary arteries