A-LEVEL

Multiple-choice questions on body fluids and the circulatory system.

1. What is the main component of blood responsible for carrying oxygen?
A) Plasma
B) Red blood cells
C) White blood cells
D) Platelets

Answer: B) Red blood cells Explanation: Red blood cells contain hemoglobin, which binds with oxygen in the lungs and transports it to tissues throughout the body.

2. Which blood vessel carries oxygenated blood from the lungs to the heart?
A) Pulmonary artery
B) Pulmonary vein
C) Aorta
D) Vena cava
Answer: B) Pulmonary vein Explanation: The pulmonary veins carry oxygenated blood from the lungs back to the left atrium of the heart.

3. The "double pump" in the human circulatory system refers to:
A) Blood flow through the heart
B) Blood flow through the arteries
C) Blood flow through the veins
D) Blood flow through the capillaries
Answer: A) Blood flow through the heart
Explanation: The heart serves as a double pump with two chambers (left and right) for pumping blood to the systemic and pulmonary circulations.

4. What is the primary function of the lymphatic system?
A) Oxygen transport
B) Nutrient absorption
C) Immune response
D) Blood clotting
Answer: C) Immune response Explanation: The lymphatic system plays a key role in the immune response by producing and transporting lymphocytes and filtering lymph.

5. Which of the following is responsible for the regulation of blood pressure?
A) Aldosterone
B) Insulin
C) Renin
D) Growth hormone
Answer: C) Renin Explanation: Renin is an enzyme that plays a crucial role in regulating blood pressure through the renin-angiotensin-aldosterone system.

6. The process of blood cell formation is known as:
A) Hemostasis
B) Hemolysis
C) Hemopoiesis

D) Hematuria
Answer: C) Hemopoiesis Explanation: Hemopoiesis is the process of blood cell formation that occurs in the bone marrow.

7. Which of the following is a function of the circulatory system?
A) Oxygen absorption
B) Nutrient digestion
C) Waste elimination
D) Regulation of body temperature
Answer: D) Regulation of body temperature Explanation: The circulatory system helps regulate body temperature by distributing heat throughout the body.

8. The "fight or flight" response is associated with the release of:
A) Insulin
B) Cortisol
C) Adrenaline (Epinephrine)
D) Thyroxine
Answer: C) Adrenaline (Epinephrine) Explanation: Adrenaline is released in response to stress or danger, initiating the "fight or flight"

response, which includes increased heart rate and blood flow.

9. Which blood type is considered the universal donor in blood transfusions?
A) A
B) B
C) AB
D) O
Answer: D) O Explanation: Blood type O is considered the universal donor because it lacks A and B antigens on red blood cells, reducing the risk of immune reactions.

10. Which of the following is responsible for the contraction of the heart muscle?
A) Sinoatrial (SA) node
B) Atrioventricular (AV) node
C) Purkinje fibers
D) Bundle of His
Answer: A) Sinoatrial (SA) node Explanation: The SA node initiates electrical impulses that stimulate the contraction of the heart muscles, setting the pace for the heartbeat.

11. What is the function of valves in the circulatory system?
A) Regulate blood pressure
B) Prevent backflow of blood
C) Produce red blood cells
D) Enhance oxygen absorption
Answer: B) Prevent backflow of blood
Explanation: Valves in veins prevent the backflow of blood, ensuring a one-way flow toward the heart.

12. The condition characterized by a narrowing of the blood vessels due to plaque buildup is called:
A) Atherosclerosis
B) Hemophilia
C) Thrombosis
D) Leukemia
Answer: A) Atherosclerosis Explanation: Atherosclerosis is a condition in which arteries narrow and harden due to the buildup of plaques, affecting blood flow.

13. The term "cardiac output" refers to:
A) Amount of blood pumped by the heart per minute
B) Volume of blood in the ventricles
C) Force of blood against artery walls

D) Oxygen-carrying capacity of blood
Answer: A) Amount of blood pumped by the heart per minute Explanation: Cardiac output is the volume of blood pumped by the heart per minute and is determined by heart rate and stroke volume.

14. Which of the following is a function of blood platelets?
A) Oxygen transport
B) Clot formation
C) Immune response
D) Nutrient absorption
Answer: B) Clot formation Explanation: Platelets are involved in the clotting process, preventing excessive bleeding when there is an injury.

15. The medical term for high blood pressure is:
A) Hypertension
B) Hypotension
C) Hyperglycemia
D) Hypoglycemia
Answer: A) Hypertension Explanation: Hypertension refers to consistently high blood pressure, which can lead to various cardiovascular issues.

16. The exchange of gases between blood and body tissues occurs in:
A) Arteries
B) Veins
C) Capillaries
D) Venules
Answer: C) Capillaries Explanation: Capillaries facilitate the exchange of gases, nutrients, and waste products between blood and tissues.

17. Which of the following is a component of the intrinsic conduction system of the heart?
A) Atrioventricular (AV) node
B) Bundle of His
C) Purkinje fibers
D) All of the above
Answer: D) All of the above Explanation: The AV node, Bundle of His, and Purkinje fibers are all components of the intrinsic conduction system that coordinates the heartbeat.

18. The hormone responsible for increasing blood sugar levels is:
A) Insulin
B) Glucagon
C) Cortisol

D) Thyroxine
Answer: B) Glucagon Explanation: Glucagon is released by the pancreas and raises blood sugar levels by promoting the conversion of glycogen into glucose.

19. The "lub-dub" sound of the heartbeat corresponds to:
A) Atrial contraction
B) Ventricular contraction
C) Atrial relaxation
D) Ventricular relaxation
Answer: B) Ventricular contraction Explanation: The "lub" sound corresponds to the closure of the atrioventricular valves during ventricular contraction, while the "dub" sound corresponds to the closure of the semilunar valves during ventricular relaxation.

20. What is the role of fibrin in blood clotting?
A) Initiating clot formation
B) Preventing clot dissolution
C) Dissolving clots
D) Constricting blood vessels
Answer: B) Preventing clot dissolution
Explanation: Fibrin is a protein that forms a mesh-

like structure to stabilize and reinforce blood clots, preventing their premature dissolution.

21. The term "hypovolemia" refers to:
A) Low blood pressure
B) Low blood volume
C) High blood pressure
D) High blood volume
Answer: B) Low blood volume Explanation: Hypovolemia is a condition characterized by a decrease in blood volume, which can lead to low blood pressure.

22. Which of the following is responsible for the contraction of smooth muscles in blood vessels?
A) Sympathetic nervous system
B) Parasympathetic nervous system
C) Somatic nervous system
D) Autonomic nervous system
Answer: A) Sympathetic nervous system Explanation: The sympathetic nervous system stimulates the contraction of smooth muscles in blood vessels, leading to vasoconstriction.

23. The enzyme angiotensin-converting enzyme (ACE) converts:

A) Angiotensin I to angiotensin II
B) Renin to aldosterone
C) Aldosterone to renin
D) Angiotensin II to angiotensin I
Answer: A) Angiotensin I to angiotensin II
Explanation: ACE converts angiotensin I, an inactive form, into angiotensin II, a potent vasoconstrictor that raises blood pressure.

24. The condition characterized by an irregular heartbeat is known as:
A) Tachycardia
B) Bradycardia
C) Arrhythmia
D) Fibrillation
Answer: C) Arrhythmia Explanation: Arrhythmia refers to an irregular heartbeat, which may involve abnormal rhythms, such as tachycardia or bradycardia.

25. The term "myocardial infarction" is commonly known as:
A) Stroke
B) Heart attack
C) Embolism
D) Aneurysm

Answer: B) Heart attack Explanation: Myocardial infarction refers to the death of heart muscle tissue due to a lack of blood supply, commonly known as a heart attack.

26. The term "venous return" refers to:
A) Blood flow to the veins
B) Blood flow from the arteries
C) Blood flow to the heart through the veins
D) Blood flow away from the heart through the veins
Answer: C) Blood flow to the heart through the veins Explanation: Venous return is the flow of blood back to the heart through the veins, facilitated by factors like skeletal muscle contractions and venous valves.

27. The "P wave" on an electrocardiogram (ECG) represents:
A) Atrial depolarization
B) Ventricular depolarization
C) Atrial repolarization
D) Ventricular repolarization
Answer: A) Atrial depolarization Explanation: The P wave corresponds to the depolarization of the atria, indicating the initiation of atrial contraction.

28. Which blood vessel carries deoxygenated blood from the upper part of the body to the heart?
A) Superior vena cava
B) Inferior vena cava
C) Pulmonary artery
D) Pulmonary vein
Answer: A) Superior vena cava Explanation: The superior vena cava brings deoxygenated blood from the upper part of the body back to the right atrium of the heart.

29. The condition characterized by inflammation of the veins, often accompanied by blood clot formation, is known as:
A) Thrombosis
B) Embolism
C) Phlebitis
D) Aneurysm
Answer: C) Phlebitis Explanation: Phlebitis refers to the inflammation of veins, which may be accompanied by the formation of blood clots.

30. The term "hemorrhage" refers to:
A) Blood clot formation

B) Excessive bleeding
C) Blood vessel dilation
D) Blood pressure regulation
Answer: B) Excessive bleeding Explanation: Hemorrhage is the medical term for excessive bleeding, either internally or externally.

31. Which of the following is NOT a component of the blood clotting process?
A) Fibrinogen
B) Prothrombin
C) Heparin
D) Thromboplastin
Answer: C) Heparin Explanation: Heparin is an anticoagulant that prevents blood clotting; it is not directly involved in the clotting process.

32. The "QRS complex" on an electrocardiogram (ECG) represents:
A) Atrial depolarization
B) Ventricular depolarization
C) Atrial repolarization
D) Ventricular repolarization
Answer: B) Ventricular depolarization
Explanation: The QRS complex represents the

depolarization of the ventricles, indicating the initiation of ventricular contraction.

33. The condition characterized by an abnormally fast heart rate is known as:
A) Bradycardia
B) Tachycardia
C) Arrhythmia
D) Fibrillation
Answer: B) Tachycardia Explanation: Tachycardia is a condition in which the heart beats at an abnormally fast rate.

34. The "Frank-Starling law of the heart" states that:
A) Stroke volume is directly proportional to heart rate
B) Stroke volume is inversely proportional to heart rate
C) Stroke volume is directly proportional to preload
D) Stroke volume is inversely proportional