

CC9-Physiology

Section A

Each question carries one mark

Fill in the blanks

1. _____ is a mixture of phospholipids and lipoproteins which lowers the surface tension of alveolar fluid.
2. The kidneys produce a hormone named _____ which stimulates the production of red blood cells.
3. _____ in blood are rich in histamine.
4. QRS wave in an electrocardiogram is result of _____ depolarization.
5. The centro-acinar cells in the pancreas secrete _____ ions.
6. A person with _____ blood group is called universal donor and with _____ blood group is called universal recipient.
7. Renin converts _____ to _____.
8. Pancreas is _____ as well as _____ gland.
9. The dental formula for an adult human is _____.
10. The end product of amino acid nitrogen metabolism in uricotelic organisms (reptiles and birds) is _____.
11. The colour of blood after mixed with CO is _____.
12. The functional unit of kidney is _____.
13. _____ ion is a buffer system which helps in Acid-Base balance.
14. Platelets are important for _____.
15. Platelets are otherwise known as _____.
16. The pH of blood is _____.
17. The blood circulation was famously described by _____ in 1628.
18. RBCs are degraded by _____.
19. The decreased binding to carbon dioxide in the blood due to increased oxygen levels is known as _____ effect.
20. A rise in the partial pressure of CO₂ or a lower pH will cause dissociation of O₂ from hemoglobin is known _____ effect.
21. Cyanide poisoning causes the colour of body _____.
22. The blood of horseshoe crab is _____ and is due to _____ pigment.
23. _____ are the most abundant WBCs.
24. Multi-lobed nucleus is present in _____ WBC.
25. The percentage of eosinophils in human body is _____.
26. The predominant WBC involve in allergic reaction is _____.
27. The leucocytes which have bilobed nuclei and secrete chemicals that destroy large parasites such as helminthes are known as _____.
28. _____ lymphocytes make antibodies.
29. _____ are the largest WBCs.
30. CO₂ is transported in blood as _____ ion.
31. Vertebrate blood is _____ coloured when oxygenated and _____ in colour when deoxygenated.

Section- B

Each question carries 1.5 mark (to be answered within 30 words)

Give the location and function of the following:

1. AV node
2. Brunner's glands
3. Chief cells
4. Islet of Langerhans
5. Parietal cell
6. Monocyte
7. Eosinphils
8. Killer T cells
9. Helper T cells

Define in one to two lines:

1. Deglutition
2. Erythropoiesis
3. Stroke volume
4. Diuresis
5. Mesobronchus
6. Serum
7. Coronary Sinus
8. Peyer's Patches
9. T_m (Transport Maximum)
10. Anemia
11. Cardiac cycle
12. Cardiac output
13. Coronary circulation
14. Alveoli
15. Monocyte
16. Eosinphils
17. Killer T cells
18. Helper T cells
19. Neutrophil
20. Leucocytes
21. Platelets
22. Thrombocytes

Section- C

Each question carries 2.5 mark (to be answered within 75 words)

Give reason for:

Delay of Action Potential at AV Node

Filtration through glomeruli is larger than other capillaries
Alveoli don't collapse after forceful expiration

Calculate

1. Calculate end systolic volume if cardiac output is 5.0 L/min, heart rate is 75 beats/min and end diastolic volume is 145 ml/min.
2. Calculate the stroke volume and then find the cardiac output if end systolic volume is 60 ml, heart rate is 72 beats/min and end diastolic volume is 130 ml/min.

Write short notes

1. Ruminant stomach
2. Dentition in mammals
3. Renin-Angiotensin-Aldosterone system
4. Hering-Breuer reflex
5. Electrocardiogram
6. Hormonal regulation of digestion
7. Composition of blood.
8. autoregulation of glomerular filtration rate
9. Acid-Base balance
10. Heart conduction system
11. Formed elements of blood
12. Pulmonary ventilation
13. Blood groups
14. Pancreatic hormones
15. Oxygen dissociation curve
16. Tachycardia
17. Ureotelic animals.
18. Homeostasis
19. Frank-Starling law
20. Rh factor
21. Coronary circulation
22. Counter-current mechanism
23. Blood cells
24. Lymph
25. Serum
26. Angiography
27. Artherosclerosis
28. Coronary Heart Disease
29. Ballooning
30. MN blood group

Differentiate between the following

1. Crop and Gizzard
2. Holobranch and Hemibranch gills
3. Micelles and Chylomicrons
4. Haemoglobin and Myoglobin
5. Tidal volume and Vital capacity
6. Facultative and obligatory water reabsorption
7. Neurogenic and myogenic heart.

8. HbA and HbF
9. Bronchus and Bronchiole
10. Cortical Nephron and Juxtamedullary Nephron
11. Gastrin and Secretin
12. Basophil and neutrophil
13. Eosinophil and Basophil
14. RBC and WBC

Section- D

Each question carries 6 mark (to be answered within 500 words)

1. Describe the process of digestion of proteins in the gastro-intestinal tract.
2. Explain the process of blood clot formation and clot retraction.
3. Write a note on acid-base balance.
4. Explain how respiratory gases, oxygen and carbon dioxide, are transported by blood.
5. Elucidate the processes involved in the formation of urine in a nephron.
6. Discuss the origin and conduction of heart beat.
7. Correlate the various events of Cardiac Cycle with ECG.
8. Describe the phases of action potential in ventricular cardiac muscle fiber.
9. Describe the process of digestion and absorption of lipids.
10. Write a note on gastrointestinal hormones.
11. Depict the life cycle of RBC with the help of a flowchart.
12. Explain how CO₂ is transported in blood.
13. Comment on the factors affecting oxygen dissociation curve.
14. Outline the factors that stimulate and inhibit gastric secretion during cephalic, gastric and intestinal phases.
15. What is 'homeostasis'? Explain the extrinsic mechanism of blood coagulation with the help of a flow diagram.
16. Distinguish between obligatory and facultative water reabsorption by the renal tubule. How is facultative reabsorption controlled ?
17. What do you understand by effective filtration pressure? Calculate its value in the renal corpuscles.
18. Explain with the help of diagram, how CO₂ transported by blood. Explain Haldane's effect.