

# GPLUS EDUCATION

Date :

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BIOLOGY

## BODY FLUIDS AND CIRCULATION

### Single Correct Answer Type

- Which of the following blood vessels in the circulatory system of frog has more deoxygenated blood?  
a) Pulmonary artery                                  b) Precaval veins  
c) Pulmocutaneous artery                                  d) Pulmocutaneous vein
- Which one indicates hypertension or high blood pressure (BP)  
a) 120/80                                  b) 110/70                                  c) 130/80                                  d) 140/90
- Identify the correct statement  
I. The impulse of the heart beat originates from SAN  
II. Rate of the heart is determined by SAN  
III. Bundle of His/AV bundle is present in the interventricular septum  
IV. Atrio Ventricular Node (AVN) is situated in the lower left corner of the right auricle  
Choose the correct option  
a) All except II                                  b) All except I                                  c) All except III                                  d) All of these
- Choose the correct pathway on the transmission of impulse in the heart beat.  
a) AV-node → SA-node → Bundle of His → Purkinje fibres  
b) SA-node → AV-node → Bundle of His → Purkinje fibres  
c) SA-node → Bundle of His → AV-node → Purkinje fibres  
d) AV-node → Bundle of His → SA-node → Purkinje fibres
- Water circulatory system in found in  
I. *Sponge*    II. *Hydra*  
III. Annelida    IV. Starfish  
V. Arthropoda  
Choose the correct option  
a) I, II and III                                  b) III, IV and V                                  c) I, II and IV                                  d) II, IV and V
- Which of the following is an example of buffer system in blood?  
a) Haemoglobin and oxyhaemoglobin                                  b) Oxygen and carbon dioxide  
c) Albumin and globulin                                  d) Sodium bicarbonate and carbonic acid
- In an open circulatory system,  
a) There is no distinction between the blood and the tissue fluid  
b) Of tissue fluid is absent  
c) No need of blood vessels  
d) Open space or sinuses are absent
- Primary blood cells are formed in  
a) Plasma                                  b) Bone marrow                                  c) Liver                                  d) Spleen
- Properties of leucocytes are  
I. they are nucleated  
II. they are denucleated like RBC  
III. they are  $6000-8000 \text{ mm}^{-3}$  of blood  
IV. they are long lived  
V. they are short lived  
Choose the appropriate option with correct properties

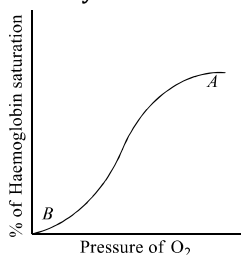
- a) I, III and V                      b) II, IV and V                      c) I, IV and V                      d) I, III and V
10. SAN can generate impulses  
a) 70 – 75 min<sup>-1</sup>                      b) 50 – 55 min<sup>-1</sup>                      c) 100 – 150 min<sup>-1</sup>                      d) 35– 40 min<sup>-1</sup>
11. Haematuria means  
a) RBCs in the urine                      b) WBCs in the urine                      c) Both (a) and (b)                      d) None of these
12. An oval depression called fossa ovalis, is seen on  
a) Inter-atrial septum                      b) Inter-ventricular septum  
c) Right-auriculo-ventricular septum                      d) Left auriculo-ventricular septum
13. Which of the following acts as ‘middle man of the body’?  
a) Plasma                      b) Lymph                      c) RBCs                      d) RBCs
14. Coronary heart disease is due to  
a) *Streptococci* bacteria                      b) Inflammation of pericardium  
c) Weakening of the heart valves                      d) Insufficient blood supply to the heart muscles
15. Pulse beat is measured from  
a) Arteries                      b) Veins                      c) Capillaries                      d) Nerves
16. Which of the following is incorrect?  
a) Heart is endodermal in origin  
b) Human heart is situated in the between the two lungs slightly tilted to left  
c) Heart is a double walled membranous bag  
d) Human heart has two atria and two ventricles
17. Lymphatic system is an elaborated network of vessels which collect the  
a) Interstitial fluid                      b) Intrastitial fluid                      c) Plasma fluid                      d) Protein fluid
18. In human heart, identify the correct statements a  
I. Volume of both the atria is the greater than the volume and both ventricles  
II. Volume of both the ventricle is greater than the volume of both the atria  
III. Inter-ventricular septum separates the right and the left atria  
IV. Atrio ventricular septum don't separates the atrium and ventricle  
Choose the correct option accordingly  
a) All except I                      b) All except II                      c) All except III                      d) All except IV
19. SAN generates an action potential which stimulates both the ...A... to undergo a simultaneous contraction called ...B... . This increases the flow of the blood into the ventricles by about ...C... percentage  
Choose the correct option for A, B and C  
a) A-atria, B-asterial systole, C-30                      b) A-ventricle, B-asterial systole, C-30  
c) A-atria, B-ventricular diastole, C-30                      d) A-atria, B-asterial diastole, C-30
20. The normal percentage of glucose in the blood of man is 0.1%, it is found in  
a) Plasma                      b) RBCs                      c) WBCs                      d) Serum
21. Systemic heart refers to  
a) Enteric heart in lower vertebrates  
b) The two ventricles together in humans  
c) The heart that contracts under stimulation from nervous system  
d) Left auricle and left ventricle in higher vertebrates
22. Which of the following can be considered as the blood bank of human body?  
a) Spleen                      b) Heart                      c) Liver                      d) Lungs
23. Coagulation of blood in blood vessels in living body is prevented by  
a) Prothrombin                      b) Heparin  
c) Prothrombin and calcium together                      d) Plasminogen and calcium together
24. Characteristic of open circulatory system  
I. Blood flows in the open tissue space, the sinuses  
II. Blood is in direct contact with the tissues cells  
III. Blood flow is slow

IV. Blood pressure is high

Choose the option with characteristics

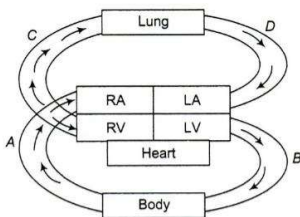
- a) All except II                      b) All except I                      c) All except III                      d) All except IV
25. In a healthy adult man the normal diastolic pressure is  
a) 90 mm Hg                      b) 120 mm Hg                      c) 80 mm Hg                      d) 100 mm Hg
26. Which of the following carries glucose from digestive tract to liver?  
a) Hepatic artery                      b) Hepatic portal vein                      c) Pulmonary vein                      d) None of these
27. When the balloon of nitre-aortic balloon pump inflates, more blood is carried to  
a) Coronary artery                      b) Pulmonary trunk                      c) Hepatic portal                      d) Pulmonary arteries
28. Clotting disorders occur mainly due to the reduction in the number of  
a) Granulocytes                      b) RBC                      c) WBC                      d) Platelets
29. Which one of the following is a matching pair of a certain body feature and its value/count in a normal human adult?  
a) Urea - 5 – 10 mg/100 mL of blood  
b) Blood sugar - 70 – 100 mg/100 mL (fasting)  
c) Total blood volume - 5 – 6  
d) ESR in Wintrobe - 9 – 15 mm in males and 20 – 34 mm in females
30. Which of the following are erythropoietic organs?  
I. liver  
II. lymph node  
III. spleen  
IV. white bone marrow  
V. red bone marrow  
Choose the correct option  
a) All except I                      b) All except II                      c) All except I                      d) All except IV
31. Prothrombin is  
a) Formed in liver                      b) Formed by vitamins  
c) Changed to thrombin by prothrominase                      d) All of the above
32. Spiral valve is present in  
a) Right auricle                      b) Sinus venosus                      c) Right ventricle                      d) Truncus arteriosus
33. Choose the correct statements regarding the human blood  
I. The volume of the blood in an adult is 5 L  
II. It constitutes 30-35% of the total extracellular fluid  
III. Glucose concentration in the blood is 50mg/100 mL  
IV. Cholesterol concentration in the blood is 30 mg/100 mL  
V. Urea level in the blood is 10 mg/100 mL  
The option with correct statements is  
a) I, II and III                      b) III, IV and V                      c) IV and V                      d) I and II
34. A doctor suggested not to have more than one child to a couple because  
a) Male is Rh<sup>+</sup> and female is Rh<sup>-</sup>                      b) Male is Rh<sup>-</sup> and female is Rh<sup>+</sup>  
c) Male is Rh<sup>-</sup> and female is Rh<sup>-</sup>                      d) Male is Rh<sup>+</sup> and female is Rh<sup>-</sup>
35. Leucocytes are colourless due to  
a) Lack of water                      b) Lack of haemoglobin  
c) Presence of extra water                      d) Presence of haemoglobin
36. When two atria contract simultaneously and results in the blood pumping into ventricles, this is called  
a) Arterial diastole                      b) Arterial systole                      c) Ventricular diastole                      d) Ventricular systole
37. In haemoglobin, which amino acid acts as blood buffer?  
a) Histidine                      b) Glutamine                      c) Aspartic                      d) Lysine

38. Identify *A* and *B* in the given graph and choose the correct option accordingly



- a) A-Lungs; B-Liver      b) A-Lungs; B-Tissue      c) A-Tissue; B-Lungs      d) A-Kidney; B-Liver
39. Double circulation is
- Passage of blood twice in heart through the same way
  - Passage of blood twice in heart through the unique way
  - Passage of blood twice in heart through the separate way
  - None of the above
40. Atrial diastole takes place when
- Right atrium is filled with blood
  - Left atrium is filled with blood
  - Both atriums are filled with blood
  - Both ventricles are filled with blood
41. Find out the wrong match
- Eosinophils – Allergic response
  - Basophils – Secrete histamine and serotonin
  - Neutrophils – Phagocytic and destroy foreign organisms
  - Monocytes – Secrete heparin
42. Select the lymphoid organs from the given choices
- Lymph node
  - Thymus gland
  - Red bone marrow
  - liver
  - Spleen
  - Osteocytes
  - Peyer's patches
- The correct option with correct choices is
- I, II, III and IV
  - III, IV, V and VI
  - IV, V, VI and VII
  - I, II, IV, V and VII
43. Exchange of gases, nutrient, etc., between the blood and the cells takes place through
- RBC
  - WBC
  - Interstitial fluid
  - Intrastitial fluid
44. Formed elements present in the human blood are
- erythrocytes
  - leucocytes
  - platelets
  - plasma
  - plasma
- Chooses the correct option
- I, II and III
  - II, III and IV
  - III, IV and V
  - I, II, III, IV and V
45. The opening of auricles and ventricles on the right side is guarded by
- Tricuspid valve
  - Bicuspid valve
  - Semilunar valve
  - Eustachian tube
46. In humans, RBCs are formed in
- Red bone marrow
  - Heart
  - Lungs
  - Yellow bone marrow
47. In frog's heart, there are cardiac muscles, which consists of fibres called
- Purkinje fibres
  - Myonemes
  - Telodendria
  - Columnae carnae
48. Bicuspid valves are found in between
- Right ventricle and right auricle
  - Right ventricle and left auricle
  - Left ventricle and left auricle
  - Right ventricle and left auricle
49. Among the following stem cells, which are found in the umbilical cord?
- Embryonic stem cells
  - Adult stem cells
  - Cord blood stem cells
  - All of these

50. Congestion of the lungs is one of the main symptoms in  
 a) Hypotension b) Coronary artery disease  
 c) Angina d) Heart failure
51. ECG is a graphical representation of the electric activity of the heart during  
 a) Cardiac systole b) Cardiac diastole  
 c) Cardiac cycle d) Ventricular and atrial diastole
52. Which is correct for artery?  
 a) Thick-walled in which blood flows at high pressure  
 b) Thin-walled and blood flow with low pressure  
 c) Thick-walled and blood flow with low pressure  
 d) None of the above
53. Human blood consists of  
 a) Fluid matrix b) Plasma c) Formed elements d) All of the above
54. Identify whether the given statements are true or false for double circulation  
 I. It checks the mixing of oxygenated and deoxygenated blood  
 II. It carries only oxygenated blood  
 Choose the correct option accordingly  
 a) I-False, II-False b) I-True, II-True c) II-False, True d) II-True, False
55. I. Neutrophils II. Eosinophils  
 III. Basophils IV. Lymphocytes  
 V. Monocytes  
 Identify whether the given cell types are granulocytes (A) and agranulocytes (B) and choose the correct option accordingly
- A B**  
 a) I,II,III IV,V b) I,III,IV II,V  
 c) IV,V I,II,III d) II,V I,III,IV
56. To obtain a standard ECG, the patient is connected to the machine with three electrical leads. These three electrical lead are connected as one each to the  
 a) Biceps and third one at the ankle b) Triceps and third one at the ankle  
 c) Thigh and third one at the ankle d) Wrist and third one at the ankle
57. Properties of human RBCs are  
 I. devoid of nucleus  
 II. formed in bone marrow  
 III. possess healing properties  
 IV. biconcave in shape  
 V. help in blood clotting  
 Choose the option with correct properties  
 a) I, II and III b) I, II and IV c) III, IV and V d) III, II and IV
58. Erythrocytes of adult rabbit and other mammals are formed in  
 a) Liver b) Spleen c) Kidney d) Red bone marrow
59. In given diagram which one is vena cava?



- a) A b) B c) C d) D
60. The following are the branches of dorsal aorta  
 I. Intercostal

- II. Phrenic
- III. Coeliac
- IV. Anterior mesenteric
- V. Posterior mesenteric

Of these which set of arteries supply the blood to the glands of digestive system?

- a) I and II                      b) III and IV                      c) IV and V                      d) II and III
61. Heart beat increases by
- a) Adrenal hormones                      b) Sympathetic nerves
- c) Both (a) and (b)                      d) Parasympathetic nerve
62. Which of the following statement (s) is/are incorrect?
- I. The AV node and the bundle of His constitute, the electrical link between the atria and the ventricles
- II. The bundle of His is a bundle of electrical nodes which allows the ventricles to contract
- III. The bundle of His is a group of fibres that carry the electrical impulses through the centre of the heart
- IV. The bundle of His is located in the atrial region
- Choose the correct option
- a) II, III and IV                      b) I, III and IV                      c) I, II and IV                      d) I, II and III
63. When thromboplastin is released in humans?
- a) During hypertension                      b) By the traumatised cell at the place of injury
- c) In the condition of erythroblastosis foetalis                      d) During anaemia
64. Blood pressure is controlled by
- a) Adrenal                      b) Thyroid                      c) Thymus                      d) Corpus luteum
65. Atherosclerosis is called
- a) Coronary artery disease                      b) Angina
- c) Heart failure                      d) Hypertension
66. Haemoglobin is
- a) An oxygen carrier in human blood                      b) A protein used as food supplement
- c) An oxygen scavenger in root nodules                      d) A plant protein with high lysine content
67. In a healthy adult man, the normal diastolic pressure is
- a) 90 mm Hg                      b) 120 mm Hg                      c) 80 mm Hg                      d) 100 mm Hg
68. You are required to draw blood from patient and to keep it in a test tube for analysis of blood corpuscles and plasma. You are also provided with the following four types of test tubes.
- Which of them will you not use for the purpose?
- a) Test tube containing calcium bicarbonate                      b) Chilled test tube
- c) Test tube containing heparin                      d) Test tube containing sodium oxalate
69. During ventricular systole
- a) Oxygenated blood is pumped into the pulmonary artery and deoxygenated blood is pumped into the artery
- b) Oxygenated blood is pumped into the aorta and deoxygenated blood is pumped into the pulmonary vein
- c) Oxygenated blood is pumped into the pulmonary vein and deoxygenated blood is pumped into the pulmonary artery
- d) Oxygenated blood is pumped into the aorta and deoxygenated blood is pumped into the pulmonary artery
70. Pacemaker in heart is situated
- a) In the wall of left atrium                      b) In the wall of right atrium
- c) On inter-auricular septum                      d) On inter-ventricular septum
71. Duration of cardiac cycle ( $\cong$  88 s)
- I. Atrial systole  $\rightarrow$  ...A... sec.
- II. Atrial diastole  $\rightarrow$  ...B... sec.
- III. Ventricular systole  $\rightarrow$  ...C... sec.
- IV. Ventricular diastole  $\rightarrow$  ...D... sec.

Total time =  $\cong$  · 88 sec

Choose the correct option for A, B, C and D

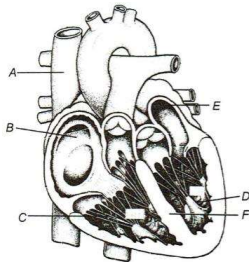
- a) A-0.32, B-0.30, C-0.08, D-0.18
- b) A-0.32, B-0.08, C-0.30, D-0.18
- c) A-0.18, B-0.08, C-0.30, D-0.32
- d) A-0.18, B-0.30, C-0.08, D-0.32

72.

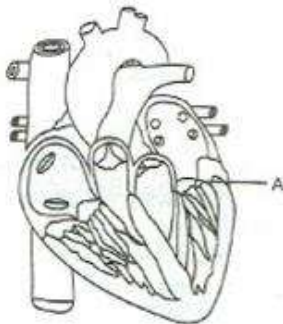
Blood group	Antigen on RBCs	Antibody in Plasma	Donor's Group
A	A	Anti b	A, O
B	B	Anti A	B, O
AB	X	Nil	Z
O	Nil	Y	O

Choose the correct option for X, Y and Z

- a) X-B; Y-A; Z-AB
  - b) X-AB; Y-Nil; Z-AB, ABO
  - c) X-AB; Y-anti-AB; Z-AB, ABO
  - d) X-AB; Y-anti AB; Z-AB, AB
73. As the blood passes through the capillaries some water along with small water soluble substances move out into the spaces between the cells of the tissues. This fluid released out is called the
- a) Intrastitial fluid
  - b) Interstitial fluid
  - c) Nutritional fluid
  - d) Vital fluid
74. During the process of blood coagulation, vitamin-K helps in the
- a) Formation of prothrombin
  - b) Formation of thromboplastin
  - c) Conversion of fibrinogen into fibrin
  - d) Conversion of prothrombin into thrombin
75. Identify A to F in the given diagram of human heart and choose the correct option

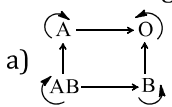
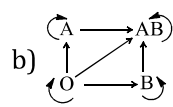
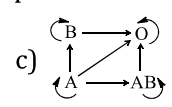
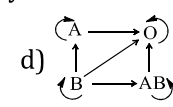


- a) A-Vena cava, B-Right atrium, C-Left atrium, D-Right ventricle, E-Left ventricle, F-Interventricular septum
  - b) A-Vena cava, B-Right atrium, C-Right ventricle, D-Left ventricle, E-Left auricle, F-Interventricular septum
  - c) A-Vena cava, B-Right atrium, C-Right ventricle, D-Left atrium, E-Left ventricle, F-Interventricular septum
  - d) A-Vena cava, B-Left atrium, C-Right ventricle, D-Left ventricle, E-Right atrium, F-Interventricular septum
76. Which of the following blood vessels in the circulatory system of frog has more oxygenated blood?
- a) Pulmocutaneous artery
  - b) Pulmocutaneous vein
  - c) Pulmonary artery
  - d) Precaval veins
77. Which of the following statement is not related to the region labelled as 'A' in the given diagram?

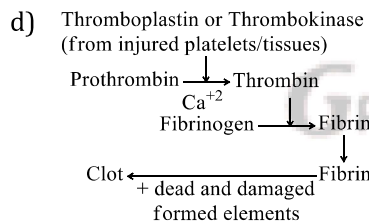
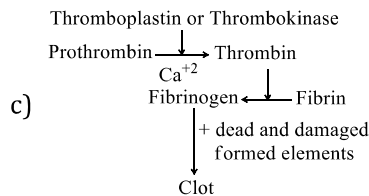
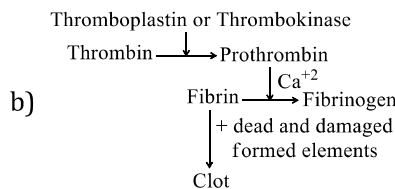
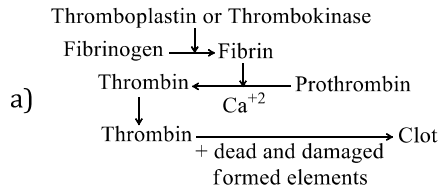


- a) Through mitral valve, it communicates with left ventricle  
 b) Through tricuspid valve, it communicates with left ventricle  
 c) Pulmonary vein brings blood to it  
 d) It is separated from the other auricle through interauricular septum
78. To which of the following, bundle of His passes stimulus of contraction?  
 a) AV-node                      b) SA-node                      c) Purkinje fibre                      d) Atrium
79. Haemolymph is the term used for the blood of the organism having  
 a) Water circulatory system                      b) Closed circulatory system  
 c) Open circulatory system                      d) Blood circulatory system
80. Carotid artery supplies oxygenated blood to  
 a) Lungs                      b) Intestine                      c) Brain                      d) None of these
81. The blood pumped by the ...A... ventricle enters the ...B... artery, whereas the ...C... ventricle pumps blood into the ...D...  
 Choose the correct option for A, B, C and D  
 a) A-right, B-pulmonary, C-left, D-aorta                      b) A-left, B-pulmonary, C-right, D-aorta  
 c) A-left, B-pulmonary, C-right, D-vena cava                      d) A-right, B-pulmonary, C-left, D-vena cava
82. The deposition of lipids on the wall lining, the lumen of large and medium-sized arteries is referred to as  
 a) Deep vein thrombosis                      b) Stokes-Adam's syndrome  
 c) Osteoporosis                      d) Atherosclerosis
83. Which test tube is not used from the given option for keeping the blood in non-coagulated state? (for analysis of blood corpuscles)  
 a) Test tube with heparin                      b) Test tube with calcium bicarbonate  
 c) Test tube with sodium oxylate                      d) Test tube with low temperature
84. The closed circulatory system is found in  
 a) Insects                      b) Lobsters                      c) Frog                      d) Clams
85. SA node is called the pacemaker of heart because  
 a) It can change the contractile activity generated by AV node  
 b) It delays the transmission of impulse between the atria and ventricles  
 c) It gets stimulated when it receives neural signals  
 d) It initiates and maintains the rhythmic contractile activity of heart
86. A substance present over the surface of RBCs and is genetically heritable is called as  
 a) Blood group                      b) Haemoglobin                      c) Antibody                      d) None of these
87. Tachycardia is  
 a) Fast heart rate                      b) Slow heart rate                      c) Stop heart rate                      d) Normal heart rate
88. In amphibians and reptiles, the ...A... atrium receives oxygenated blood from the gills/lung/skin and ...B... atrium gets the ...C.... blood from other body parts  
 Choose the correct option for A, B and C  
 a) A-right, B-left, C-deoxygenated                      b) A-right, B-left, C-oxygenated  
 c) A-left, B-right, C-deoxygenated                      d) A-left, B-right, C-oxygenated
89. Which blood vessels carry blood from different parts of your body to the heart?  
 a) Capillaries                      b) Arteries                      c) Veins                      d) All of these
90. The vein that does not directly open into the heart is  
 a) Pre-caval                      b) Post-caval                      c) Pulmonary                      d) Posterior mesenteric
91. Which one of the following has an open circulatory system?  
 a) *Pheretima*                      b) *Periplaneta*                      c) *Hirudinaria*                      d) *Octopus*
92. Purkinje fibres are present in  
 a) Brain                      b) Heart                      c) Blood                      d) Lungs
93. Pulmonary circulation is  
 a) Left auricle  $\xrightarrow[\text{blood}]{\text{Oxygenated}}$  Lungs  $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$  Right ventricle



- b) Left auricle  $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$  Lungs  $\xrightarrow[\text{blood}]{\text{Oxygenated}}$  Right ventricle
- c) Right ventricle  $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$  Lungs  $\xrightarrow[\text{blood}]{\text{Oxygenated}}$  left auricle
- d) Right ventricle  $\xrightarrow[\text{blood}]{\text{Oxygenated}}$  Lungs  $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$  left auricle
94. Which one of the following statements is correct regarding blood pressure?
- 100/55 mmHg is considered an ideal blood pressure
  - 105/50 mmHg makes one very active
  - 190/110 mmHg may harm vital organs like brain and kidney
  - 130/90 mmHg is considered high and requires treatment
95. The heart muscles are
- Striated and involuntary
  - Striated and voluntary
  - Smooth and involuntary
  - Non-striated and involuntary
96. Patient with unknown blood group needs immediate blood transfusion. In this case, which blood do you suggest to give that patient immediately?
- Blood group-B
  - Blood group-AB
  - Blood group-A
  - Blood group-O
97. The second step in the coagulation of blood is catalyzed by
- Thrombin
  - Factor-XIII
  - Factor-XII
  - Heparin
98. The wall of the ventricles are much thicker than that of atrium because
- It has to pump the blood
  - It has to receive the blood
  - It is present below the atrium
  - It has to store the blood
99. Sequence of electrical impulse in heart beat is
- AV node → pacemaker → auricles → ventricles
  - Ventricle → pacemaker → AV node → auricle
  - Pacemaker → atria → AV node → ventricle
  - Pacemaker → AV node → atria → ventricle
100. Which chamber of the human heart has the thickest muscular wall?
- Left auricle
  - Left ventricle
  - Right auricle
  - Right ventricle
101. In humans, blood passes from the post caval to the diastolic right atrium of heart due to
- Pushing open of the venous valves
  - Suction pull
  - Stimulation of the sino-auricular node
  - Pressure difference between the caval and atrium
102. In the ventricular diastole, the ...A... valve closes. This causes the second heart sound ...B.... Choose the correct option for A and B
- A-Semilunar; B-Dub
  - A-Mitral; B-Dub
  - A-Bicuspid; B-Dub
  - A-Tricuspid; B-Dub
103. Which of the given option is correct about blood groups and donor compatibility?
- 
  - 
  - 
  - 
104. Which of the following sentences is correct?
- ECG is of a great clinical significance
  - Electrocardiograph is the recording of electrical changes during the cardiac cycle
  - To obtain a standard ECG, a patient is connected to the machine with 3 electrical electrodes (one to each wrist and to the left ankle)
  - Normal activities of the heart are regulated intrinsically
  - Electrocardiogram is the electrical activity of heart
- The option with correct statements is
- I, II, III and IV
  - I, III, IV and V
  - II, III, IV and V
  - I, II, IV and V
105. Cardiac output is determined by

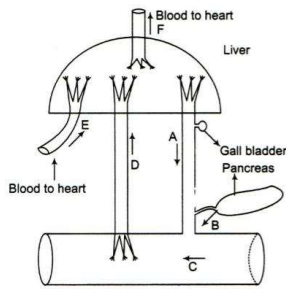
- a) Heart rate                      b) Stroke volume                      c) Blood flow                      d) Both (a) and (b)
106. Viper venom affects  
 a) Circulatory system              b) Nervous system              c) Respiratory system              d) None of these
107. A circulatory system, which is formed by capillaries and ends with capillaries is  
 a) Renal                                      b) Hepatic  
 c) Double circulatory system              d) Hypophysial portal system
108. Blood leaving the liver and going towards heart is rich in  
 a) Bile                                      b) Urea                                      c) Ammonia                              d) Oxygen
109. Which is correct about blood clotting?



110. Maximum amount of oxygen is lost from the blood in the  
 a) Capillaries surrounding the tissue cells              b) Arteries of the body  
 c) Capillaries surrounding the alveoli              d) Left auricle of the heart
111. Atherosclerosis is caused by deposition of  
 a) Calcium                                      b) Fat and cholesterol  
 c) Deposition of fibrous tissue              d) All of the above
112. Which of the following are located in tunica media of human blood vessels?  
 a) Collagen fibres and smooth muscle              b) Squamous epithelium and striated muscle  
 c) Yellow fibres and smooth muscle              d) Yellow fibres and striated muscle
113. Duration of a cardiac cycle is  
 a) 0.6 second                      b) 0.7 second                      c) 0.8 second                      d) 0.9 second
114. The myocardium is found in  
 a) Heart of mammals              b) Brain of mammals              c) Lungs of mammals              d) Testes of mammals
115. Normal activities of the heart are regulated  
 a) Extrinsically                      b) Intrinsically                      c) Both (a) and (b)                      d) None of these
116. During each cardiac cycle, prominent sounds are produced which can be easily heard through stethoscope. They are  
 a) Lub                                      b) Dub                                      c) Tick                                      d) Both (a) and (b)
117. Serum is

- a) Blood without corpuscles  
 c) Blood without fibrinogen and corpuscles
- b) Blood without fibrinogen  
 d) Otherwise called as plasma
118. Neural centre in medulla oblongata can moderate the cardiac function through  
 a) ANS (Autonomic Nervous System)  
 c) Parasympathetic nervous system
- b) Sympathetic nervous system  
 d) Somatic nervous system
119. Maximum surface area of circulating system is seen in  
 a) Heart  
 b) Capillaries  
 c) Arterioles  
 d) Veins
120. The normal level of haemoglobin per 100mL of blood in women is  
 a) 14 g  
 b) 18 g  
 c) 12 g  
 d) 20 g
121. Rh<sup>-</sup> person donated blood to Rh<sup>+</sup> person for the second time. Then,  
 a) Rh<sup>-</sup> person will die  
 c) Rh<sup>+</sup> blood starts reacting to Rh<sup>-</sup> blood
- b) Nothing happens to Rh<sup>+</sup> person  
 d) Rh<sup>+</sup> person will die
122. Systemic circulation is  
 a) Left ventricle  $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$  Tissues  $\xrightarrow[\text{blood}]{\text{Oxygenated}}$  Right ventricle  
 b) Right ventricle  $\xrightarrow[\text{blood}]{\text{Oxygenated}}$  Tissues  $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$  Right auricle  
 c) Left ventricle  $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$  Tissues  $\xrightarrow[\text{blood}]{\text{Oxygenated}}$  Right auricle  
 d) Left ventricle  $\xrightarrow[\text{blood}]{\text{Oxygenated}}$  Tissues  $\xrightarrow[\text{blood}]{\text{Deoxygenated}}$  Right auricle
123. 72 beats per minute heart beat rate of man is controlled by  
 a) SA-node  
 b) Ventricles  
 c) Purkinje fibres  
 d) AV-node
124. Which one of the following is matching pair?  
 a) Lubb – Sharp closure of AV valves at the beginning of ventricular systole  
 b) Dup – Sudden opening of semilunar valves at the beginning of ventricular diastole  
 c) Pulsation of the radial artery – Valves in the blood vessels  
 d) Initiation of the heart beat – Purkinje fibres
125. A = Auricle, V = Ventricle
- |   |
|---|
| A |
| V |
| A |
- |   |   |
|---|---|
| A | A |
| V | V |
| A | A |
- |   |   |
|---|---|
| A | A |
| V | V |
| A | A |
- A                  B                  C
- Identify the correct examples of figures A, B and C  
 a) A-Fishes, B-Reptiles, C-Birds  
 c) A-Fishes, B-Mammals, C-Reptiles
- b) A-Fishes, B-Amphibians, C-Mammals  
 d) A-Fishes, B-Birds, C-Mammals
126. Which of the following sequences is truly a systemic circulation pathway?  
 a) Right ventricle → Pulmonary aorta → Tissues → Pulmonary veins → Left auricle  
 b) Right auricle → Left ventricle → Aorta → Tissues → Veins → Right auricle  
 c) Left auricle → Left ventricle → Pulmonary aorta → Tissues → Right auricle  
 d) Left auricle → Left ventricle → Pulmonary aorta → Arteries → Tissues → Veins → Right atrium
127. Haemoglobin contains  
 a) Fe<sup>2+</sup>  
 b) Mg<sup>2+</sup>  
 c) Na<sup>2+</sup>  
 d) Ca<sup>2+</sup>
128. Which of the following is main negative mineral ion in extracellular fluid?  
 a) SO<sub>4</sub><sup>2-</sup>  
 b) Cl<sup>-</sup>  
 c) NO<sub>2</sub><sup>-</sup>  
 d) OH<sup>-</sup>
129. Atrial natriuretic hormone is produced by  
 a) Kidney  
 b) Heart  
 c) Duodenum  
 d) Thyroid gland
130. The branches of the nodal tissue, which give rise to minute fibres throughout the ventricular musculature of the respective sides are called  
 a) Sino auricular node  
 c) Purkinje fibre
- b) Atrio ventricular node  
 d) Bundle of His

131. The valves in the heart allows the blood flow in which direction?  
 I. From atria to ventricles  
 II. From ventricles to pulmonary artery  
 III. From pulmonary artery to aorta  
 Choose the correct option  
 a) I and II                      b) II and III                      c) III and I                      d) All of these
132. Heart sound 'dup' is caused due to closing of  
 a) Valve                      b) Tricuspid valve                      c) Semilunar valve                      d) None of the above
133. SA-node is located in  
 a) Lower lateral wall of right atrium                      b) Upper lateral wall of right atrium  
 c) Upper lateral wall of left atrium                      d) Lower lateral wall of left atrium
134. Which of the following is the correct pathway for propagation of cardiac impulse?  
 a) SA node → AV node → Bundle of His → Purkinje fibres  
 b) AV node → Bundle of His → SA node → Purkinje fibres  
 c) SA node → Purkinje fibres → AV node → Bundle of His  
 d) Purkinje fibres → AV node → SA node → Bundle of His
135. The blue baby syndrome results from  
 a) Excess of chloride                      b) Methaemoglobin  
 c) Excess of dissolved oxygen                      d) Excess of TDS (Total Dissolved Solids)
136. 'Bundle of His' are  
 a) Nervous tissue supplied to ventricles                      b) Nervous tissue supplied to heart  
 c) Muscular tissue supplied to ventricles                      d) Muscular tissue supplied to heart
137. Most abundant cells in the human blood are  
 a) WBC                      b) Plasma cells                      c) RBC                      d) Platelets
- 138.
- | Blood Group | May Receive Blood | May Donate Blood |
|-------------|-------------------|------------------|
| O           | O                 | Z                |
| A           | X                 | A, AB            |
| B           | B, O              | B, AB            |
| AB          | Y                 | P                |
- Choose the correct option for X, Y, Z and P  
 a) X-A,O, Y-O,A, B, AB, Z-O,A,B, AB, P-A,B                      b) X-A, Y-O,A, B, AB, Z-O,A,B, AB, P-A,B  
 c) X-O, Y-O,A, B, AB, Z-O,A,B, AB, P-A                      d) X- O, Y-O,A, B, AB, Z-O,A,B, AB, P-B
139. The cardiac cycle in normal person is about  
 a) 0.5 second                      b) 0.8 second                      c) 1.0 second                      d) 1.2 second
140. In diastole, heart is filled by  
 a) Mixed blood                      b) Venous blood                      c) Oxygenated blood                      d) Deoxygenated blood
141. Extrinsic factors (blood clotting) are the factors triggered by release of  
 a) Thromboplastin                      b) Heparin                      c) Histamin                      d) Fibrinogen
142. Purkinje fibres are present in  
 a) Left auricle                      b) Right auricle  
 c) Ventricle myocardium                      d) SAN
143. The diagram below shows how things get to and from the liver. They are labelled as A, B, C, D, E and F.  
 Which one of the following labellings is the correct one?



- a) A is the hepatic portal vein and E is the hepatic vein
- b) C is the intestine and F is the hepatic portal vein
- c) D is the hepatic portal vein and F is the hepatic vein
- d) B is the pancreatic artery and E is the hepatic artery

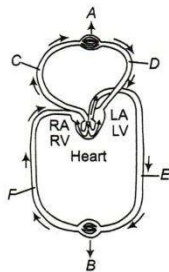
144. Identify the correct set of arteries formed from each common iliac artery of rabbit.

- a) Internal iliac, External iliac, Vesicular, Lumbar, Posterior epigastric arteries
- b) Internal iliac, External iliac, Vesicular, Posterior, Mesenteric epigastric arteries
- c) Internal iliac, External iliac, Vesicular, Uterine, Posterior epigastric arteries
- d) Internal iliac, External iliac, Uterine, Lumbar, Posterior epigastric arteries

145. Cardiac output is

- a) Volume of the blood pumped out by each ventricle per minute
- b) Volume of the blood contained in the entire heart
- c) Volume of the oxygenated blood pumped by heart
- d) Volume of the deoxygenated blood pumped by heart

146. Identify A to F



Choose the correct option

- a) A-Lungs, B-Body parts, C-Pulmonary vein, D-Pulmonary artery, E-Dorsal aorta, F-Vena cava
- b) A-Lungs, B-Body parts, C-Pulmonary artery, D-Pulmonary vein, E-Dorsal aorta, F-Vena cava
- c) A-Lungs, B-Body parts, C-Pulmonary artery, D-Pulmonary vein, E-Vena cava, F-Dorsal aorta
- d) A-Body parts, B-Lungs, C-Pulmonary artery, D-Pulmonary vein, E-Vena cava, F-Dorsal aorta

147. If due to some injury the chordae tendinae of the tricuspid valve of the human heart is partially non-functional, what will be the immediate effect?

- a) The flow of blood into the aorta will be slowed down
- b) The 'pace maker' will stop working
- c) The blood will tend to flow back into the left atrium
- d) The flow of blood into the pulmonary artery will be reduced

148. An artificial pacemaker is implanted subcutaneously and connected to the heart in patients

- a) Having 90% blockage of the three main coronary arteries
- b) Having a very high blood pressure
- c) With irregularity in the heart rhythm
- d) Suffering from arteriosclerosis

149. Ventricular systole occurs

- a) After the auricular/atrial systole
- b) When tricuspid and bicuspid valve closes
- c) Both (a) and (b)
- d) None of the above

150. 'Bundle of His' can be named as a muscular tissue which is found between

- a) Ventricles
- c) Atrium

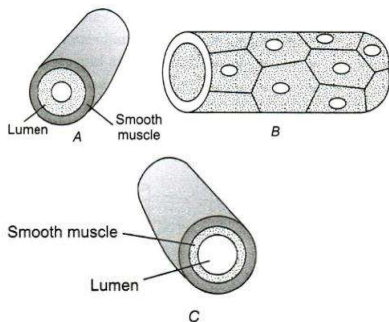
- b) Interatrial groove
- d) Atrio-ventricular spectrum

151. Open circulatory system is present in

- VI. Arthropods
- VII. Annelids
- VIII. Chordates
- IX. Molluscs

- a) III only
- b) III and II
- c) I and IV
- d) IV only

152. Identify A, B and C in the given diagram



Choose the correct option

- a) A-Artery, B-Capillary, C-Vein
- b) A-Artery, B-Vein, C-Capillary
- c) A-Vein, B-Artery, C-Capillary
- d) A-Capillary, B-Artery, C-Vein

153. The important function of lymph is to

- a) Transport oxygen to the brain
- b) Transport carbon dioxide to the lungs
- c) Return RBCs to the lymph nodes
- d) Return interstitial fluid to the blood

154. In reptiles and amphibians, there is no clear cut separation of oxygenated and deoxygenated blood because they have

- a) Only one atrium
- b) Only one ventricle
- c) Only two atria
- d) Only two ventricles

155. In heart cells, which one serves as a second messenger speeding up muscle cell contraction in response to adrenaline?

- a) cAMP
- b) cGMP
- c) GTP
- d) ATP

156. Lymphocytes (20-25%) are of two major types, B and T forms. They are responsible for

- a) Blood coagulation
- b) Thickness of blood
- c) Immune responses
- d) All of these

157. Tricuspid valve is present in

- a) Right atria and right ventricle
- b) Left atria and left ventricle
- c) Wall of atrium
- d) Wall of ventricles

158. The first heart sound 'Lubb' occurs in which phase of the cardiac cycle?

- a) Isometric relaxation
- b) Atrial diastole
- c) Ventricular systole
- d) Ventricular diastole

159. The progenitors that are formed in bone marrow and differentiated elsewhere are

- a) Pre NK-cells
- b) Pre-erythroblast
- c) Pre T-cells
- d) Myeloblast

160. The largest RBCs have been seen in

- a) Elephant
- b) Whale
- c) Amphibians
- d) Man

161. Pulmonary artery differs from pulmonary vein in having

- a) No endothelium
- b) Strong valves
- c) Branner's cells
- d) Thick muscular walls

162. The structure of which of the following consists of a layer of single cell thickness?

- a) Blood capillary
- b) Artery
- c) Venule
- d) Arteriole

163. In normal humans, time taken for the normal blood clotting is

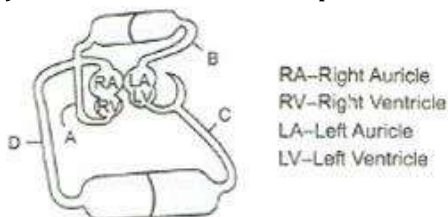
- a) 5-25 min
- b) 30-50 min
- c) 4-10 min
- d) Few sec

164. Universal donors and universal recipients are

- a) A, B and O blood groups, respectively
- b) O and AB blood groups, respectively
- c) O and A blood groups, respectively
- d) AB and O blood groups, respectively

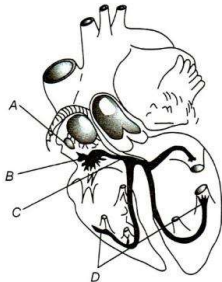
165. If husband is Rh<sup>+</sup> and wife is Rh<sup>-</sup> then  
 a) No problem with first child  
 b) Second child would have anaemia (erythroblastosis foetalis)  
 c) Second child would be normal  
 d) Both (a) and (b)
166. Platelets are  
 a) Also called thrombocytes  
 b) Cell fragments  
 c) Produced from megakaryocytes  
 d) All of the above
167. Which of the following matches correctly?  
 a) Inferior vena cava – Receives deoxygenated blood from the head and body  
 b) Superior vena cava – Receives deoxygenated blood from the lower body and organs  
 c) Pulmonary artery – Carries deoxygenated blood to the lungs  
 d) Hepatic artery – Carries deoxygenated blood to the gut
168. A healthy individual has ...A... grams of haemoglobin in every ...B... mL of blood. These molecules plays a significant role in the transport of ...C... gases.  
 Choose the correct option for A, B and C  
 a) A-12-16, B-100, C-respiratory  
 b) A-6-8, B-100, C-respiratory  
 c) A-7-10, B-1000, C-respiratory  
 d) A-16-20, B-1000, C-respiratory
169. How many double circulations are normally completed by the human heart, in one minute?  
 a) Eight  
 b) Sixteen  
 c) Seventy two  
 d) Thirty six
170. Maximum pressure of blood experienced during when blood enters from  
 a) Right ventricle to aorta  
 b) Right auricle to aorta  
 c) Left ventricle to aorta  
 d) Left auricle to aorta
171. Which of the following events do not occur during joint diastole?  
 I. All four-chamber are in relaxed state  
 II. Tricuspid and bicuspid are open  
 III. Semilunar valves are closed  
 IV. Blood from the pulmonary veins and vena cava flows into the left and right ventricles, respectively through the left and right atria  
 The correct option containing correct choice is  
 a) Only I  
 b) Only III  
 c) II and IV  
 d) None of these
172. Lymph is an important carrier for the transport of  
 a) Nutrients  
 b) Hormones  
 c) Platelets  
 d) Both (a) and (b)
173. Chordae tendinae are found in  
 a) Atria of heart  
 b) Ventricles of heart  
 c) Joints of legs  
 d) Joints of hands
174. Organisms which circulate water from their surrounding through their body cavities to facilitate the cells to exchange the substances are  
 a) Porifera  
 b) Sponges  
 c) Both (a) and (b)  
 d) None of the above
175. Source of thromboplastin in the human blood is  
 a) WBC  
 b) RBC  
 c) Blood platelets  
 d) Both (b) and (c)
176. Chordae tendinae  
 a) Are present close to AV valves  
 b) Open semilunar valves  
 c) Prevent the AV valves flaps from everting  
 d) Are present in auricle

177.



In the above given diagram, which blood vessel represents vena cava?

- a) C                                      b) D                                      c) A                                      d) B
178. Life span of RBCs is  
a) 50 days                                      b) 70 days                                      c) 120 days                                      d) 220 days
179. Formed element constitutes what percentage of the blood?  
a) 55% of blood                                      b) 45% of blood                                      c) 35% of blood                                      d) 25% of blood
180. Neural signals through the sympathetic nerves (ANS) can increase the rate of heart beat by  
a) Increasing heart output  
b) Increasing the strength of ventricular contraction  
c) Both (a) and (b)  
d) Increasing the contraction of atrium
181. Cardiac output is  
a) Stroke volume  $\times$  Heart rate = 72 mL/m                                      b) Stroke volume  $\times$  Heart rate = 5 L/m  
c) Stroke volume  $\times$  Heart rate = 500 mL                                      d) Stroke volume  $\times$  Heart rate = 3 L/m
182. In bird and mammals, the oxygenated blood received by ...A... and deoxygenated blood receive by ...B... .  
The ventricles pump in out without any mixing up of oxygenated and deoxygenated blood  
Choose the correct option for A and B  
a) A-left atria, B-right atria                                      b) B-right atria, A-left atria  
c) A-right ventricle, B-left ventricle                                      d) A-left ventricle, B-right ventricle
183. Foramen ovale  
a) Connects the two atria in the foetal heart  
b) Is a condition in which the heart valves do not completely close  
c) Is a shallow depression in the interventricular septum  
d) Is a connection between the pulmonary trunk and the aorta in the foetus
184. The name of the pace maker of heart is  
a) Lymph node                                      b) SA node  
c) Juxtglomerular apparatus                                      d) Semilunar valve
185. Hepatic portal system is a  
a) Vascular connection between the digestive tract and liver  
b) Vascular connection between the liver and lungs  
c) Vascular connection between the spleen and liver  
d) Vascular connection between the digestive tract and spleen
186. Ventricles are related to  
a) Heart only                                      b) Brain only                                      c) Both (a) and (b)                                      d) None of these
187. Identify the correct labelling for A, B, C and D and choose the correct option accordingly

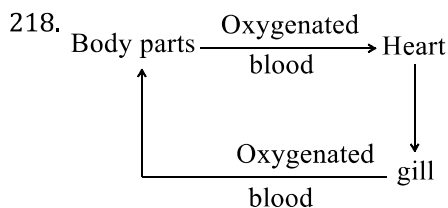


- a) A-Sinoauricular node, B-Atrioventricular node, C-Bundle of His, D-Purkinje fibre  
b) A-Sinoauricular node, B-Atrioventricular node, C-Purkinje fibre, D-Bundle of His  
c) A-Purkinje fibre, B-Atrioventricular node, C-Bundle of His, D-Sinoauricular node  
d) A-Purkinje fibre, B-Bundle of His, C-Sino auricular node, D-Atrioventricular node
188. Which is largest among the given type of leucocytes?  
a) Eosinophils                                      b) Basophils                                      c) Monocytes                                      d) Lymphocytes
189. Which system has a major role in defence against infection?  
a) Respiratory system                                      b) Circulatory system                                      c) Lymphatic system                                      d) All of these



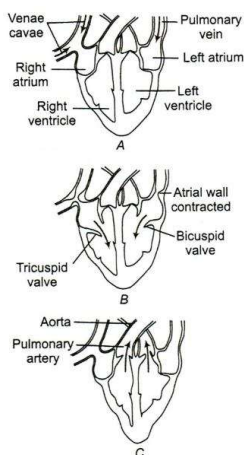
190. People living at sea level have around 5 million RBCs per cubic millimetre of their blood, whereas those living at an altitude of 5400 metres have around 8 million. This is because at high altitude
- People get pollution-free air to breathe and more oxygen is available
  - Atmospheric oxygen level is less and, hence more RBCs are needed to absorb the required amount of oxygen to survive
  - There is more UV radiation, which enhances RBCs production
  - People eat more nutritive food, therefore, more RBCs are formed
191. Which of the following does not control the heart beat?
- Vagus
  - Epinephrine
  - Norepinephrine
  - Glossopharyngeal nerve
192. Fats in the human body are absorbed through
- Lymph
  - Phagocytes
  - Monocytes
  - Both (b) and (c)
193. The graveyard of RBC is
- Liver
  - Stomach
  - Spleen
  - Bone marrow
194. Angina occurs due to
- When enough oxygen is reaching to heart muscle
  - When not enough oxygen is reaching to heart muscle
  - The deposition of carbohydrates artery
  - The deposition of protein in artery
195. Haemoglobin molecule is made up of
- One  $\alpha$ -chain and one  $\beta$ -chain
  - Two  $\alpha$ -chains and two  $\beta$ -chains
  - Two  $\alpha$ -chains and one  $\beta$ -chain
  - One  $\alpha$ -chain and two  $\beta$ -chains
196. Arteries are best defined as the vessels which
- Carry blood away from the heart to different organs
  - Break up into capillaries which reunite to form a vein
  - Carry blood from one visceral organ to another visceral organs
  - Supply oxygenated blood to the different organs
197. Autoexcitable fibres/nodes are called
- Nodal musculature
  - Cardiac nerves
  - Neurons
  - All of these
198. The name Rh blood group is derived from
- Chimpanzee
  - Monkey
  - Man
  - Primitive man
199. A specialised cardiac musculature called ...A... tissue is also distributed in the heart. A patch of this tissue is present in the right upper corner of the right atrium called ...B... . Another mass of this tissue is seen in the lower left corner of the right atrium close to the atrio-ventricular septum called ...C...  
Choose the correct option for A, B and C
- A-Nodal tissue, B-SAN, C-AVN
  - A-Nodal tissue, B-AVN, C-SAN
  - A-AVN, B-Nodal tissue, C-SAN
  - A-SAN, B-AVN, C-Nodal tissue
200. Advantage of closed circulatory system is that
- Exchange occurs more rapidly
  - Flow of blood more precisely regulated
  - It can support high metabolic activity
  - All of the above
201. Which of the following statements is true for lymph?
- WBCs and serum
  - All components of blood except RBCs and some proteins
  - RBCs, WBCs and plasma
  - RBCs, proteins and platelets
202. Subsequent normal pregnancies of Rh<sup>+</sup> husband and Rh<sup>-</sup> wife could be possible by
- Administering anti-Rh antibody to the mother just after the delivery of 1st child
  - Transfusion of blood to the 2nd baby just after the birth
  - Living anti-Rh antibody to the 2nd baby just after the birth
  - All of the above

203. Major proteins in the human blood are  
 I. fibrinogen II. globulins  
 III. albumins  
 Choose the correct combination of option  
 a) I and II                      b) II and III                      c) I and III                      d) I, II and III
204. Which of the following organs can be called a sort of 'blood bank'?  
 a) Heart                      b) Spleen                      c) Liver                      d) Lungs
205. Cascade theory of blood clotting was given by  
 a) William Harvey                      b) Mac Ferlane                      c) Karl Landsteiner                      d) S Hales
206. During cardiac cycle, about ...A...% of ventricular filling occurs, prior to the arterial contraction ...B...% ventricular filling occurs due to arterial contraction  
 Choose the correct option for A and B  
 a) A-30; B-70                      b) A-70; B-30                      c) A-40; B-60                      d) A-60; B-40
207. Prothrombinase is formed in the presence of  
 a)  $Ca^{2+}$                       b)  $Mg^{2+}$                       c)  $Fe^{2+}$                       d)  $Fe^{3+}$
208. The artery, which supplies blood to the pericardium is  
 a) Brachial artery                      b) Coronary artery  
 c) Vertebral artery                      d) Internal mammary artery
209. Example of Rh incompatibility is  
 a) Mother Rh – ve and father Rh + ve                      b) Father Rh – ve and Mother Rh + ve  
 c) Both Rh – ve                      d) Both Rh + ve
210. Which of the following causes degradation of RBCs?  
 a) Sulphur compounds                      b) Arsenic compounds                      c) Hydrocarbons                      d) Ammonia
211. Serum is  
 a) Blood without fibrinogen                      b) Lymph without corpuscles  
 c) Blood without corpuscles and fibrinogen                      d) Lymph
212. Granulocytes and agranulocytes are the two main categories of  
 a) RBC                      b) WBC                      c) Thrombocyte                      d) Blood platelets
213. The difference between systolic and diastolic pressure in human is  
 a) 120 mm Hg                      b) 80 mm Hg                      c) 40 mm Hg                      d) 200 mm Hg
214. Diastolic pressure of a normal human is  
 a) 120 mm of Hg                      b) 70 mm of Hg                      c) 80 mm of Hg                      d) 70 mm of Hg
215. Systolic pressure in a normal human is  
 a) 70 mm of Hg                      b) 80 mm of Hg                      c) 90 mm of Hg                      d) 120 mm of Hg
216. RBCs have an average life span of  
 a) 90 days                      b) 100 days                      c) 120 days                      d) 140 days
217. According to Cascade theory of blood clotting, how many factors are required in the process of blood clotting?  
 a) 12                      b) 10                      c) 13                      d) 11



Given diagram depicts the circulation in

- a) Fishes                      b) Mammals                      c) Reptile                      d) Amphibian
219. What does diagram A, B and C indicates?



Choose the correct combination

- a) A-Atrial diastole, B-Atrial systole, C-Ventricular systole
- b) A-Atrial systole, B-Atrial diastole, C-Ventricular systole
- c) A-Atrial diastole, B-Atrial systole, C-Ventricular diastole
- d) A-Atrial systole, B-Atrial diastole, C-Ventricular diastole

220. Select the incorrect statements

- I. Barr body is an another name for neutrophils
- II. Agranulocytes are formed in the red bone marrow
- III. Granulocytes are formed in the spleen and lymph node
- IV. Lymphocytes exist as two major types, B and T lymphocytes

The correct option with incorrect statement is

- a) I, II and III
- b) Only I
- c) Only III
- d) Only II

221. The valves, which allow blood to flow from the ventricles into the arteries and not in the opposite direction are

- a) AV-valve (Atrio Ventricular valve) and semilunar valve
- b) Bicuspid and tricuspid valve
- c) Semilunar and tricuspid valve
- d) Aortic and mitral valve

222. Study the following statements.

- I. Plasma constitutes 45% of the human blood.
- II. Albumin is a plasma protein, which helps in osmotic balance.
- III. Factors responsible for the blood clotting process are present in the blood.
- IV. Plasma without clotting factors is called serum.
- V. Minerals are not generally found in blood.

- a) Only V is wrong and all other I to IV are correct
- b) I and II are correct and III, IV and V are wrong
- c) II and IV are correct and I, III and V are wrong
- d) II, III and IV are correct and I and V are wrong

223. Haemoglobin (Hb) transports oxygen from the lungs to tissues. The partial pressure of the oxygen in lungs is different from that in tissues. Each Hb can bind to up to four oxygen molecules. Suppose, we have an equal number of Hb and oxygen molecules and all the oxygen molecules are in bounded form. Then, which of the following is true?

- a) Almost all the Hb molecules have one bound oxygen molecule
- b) Nearly half of all the Hb molecules are bound to two oxygen molecules
- c) Nearly one-fourth of all the Hb molecules are bound to four oxygen molecules each
- d) Most of the Hb molecules have one bound oxygen molecule each; the rest either have no bound oxygen or have two or more bound oxygen molecules

224. Which of the following plasma proteins is involved in the coagulation of blood?

- a) Serum amylase
- b) A globulin
- c) Fibrinogen
- d) An albumin

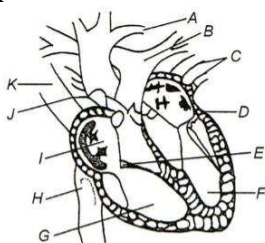
225. In higher vertebrates, SA-node helps in

- a) Conduction of blood  
c) Opening of tricuspid valve
- b) Initiation of heart beat  
d) Opening of bicuspid valve
226. Which one has the thickest wall?  
a) Right auricle                      b) Right ventricle                      c) Left auricle                      d) Left ventricle
227. Compare to blood our lymph has  
a) No plasma                                      b) Plasma without proteins  
c) More WBCs and no RBCs                      d) More RBCs and less WBCs
228. Parasympathetic neural signal decreases the cardiac output by  
a) Decreasing the speed of conduction of action potential  
b) Slowing down the rate of heart beat  
c) Increasing the speed of blood in veins  
d) Both (a) and (b)
229. In which one of the following pairs, the two items mean one and the same thing?  
a) Malleus – Anvil                                      b) SA-node – Pacemaker  
c) Leucocytes – Lymphocytes                      d) Haemophilia - Blood cancer
230. The low pressure below the arterial  $p_{O_2}$  results in  
a) Release of  $CO_2$  from the cell                      b) Formation of haemoglobin  
c) Production of bicarbonate                      d) Formation of carbonic acid
231. Which one of the following human cells do not contain mitochondria?  
a) Nerve cell                      b) Red blood cell                      c) Liver cell                      d) White blood cell
232. Identify the incorrect statements and correct choose the correct option accordingly  
I. Interstitial fluid (tissue fluid) and lymph have almost similar composition  
II. Lymph and interstitial fluid have no larger proteins and RBC  
III. Exchange of the nutrients and gases, etc., between the blood and cells always occurs through tissue fluid  
IV. Interstitial fluid has the same mineral distribution as that of the plasma  
V. Lymph can be defined as the blood minus RBC but has specialised lymphocytes  
a) I and II                      b) II and III                      c) IV and V                      d) None of the above
233. What is the principal cation in human blood?  
a) Potassium                      b) Sodium                      c) Calcium                      d) Manganese
234. Which of the statement is correct?  
I. The closing and opening of the heart is through the valves during each heart beat  
II. The movement of the impulse passes from the SA node to all the regions of the heart wall  
III. The number of the times the heart beats in one minute is 60  
IV. Change in the blood volume in all the chambers of the heart occurs during the cardiac cycle  
The option with correct statements is  
a) I, II and III                      b) II, III and IV                      c) I, II and IV                      d) I, III and IV
235. Blood without corpuscles and fibrinogen is called  
a) Lymph                      b) Serum                      c) Plasma                      d) Platelets
236. Closed circulatory system is present in  
a) Annelids and chordates                                      b) Arthropods and annelids  
c) Arthropods and chordates                                      d) Molluscs and annelids
237. A heart murmur indicates a defective  
a) Bundle of His                                      b) Heart valves  
c) Sino-atrial node                                      d) Atrio-ventricular node
238. Pulmonary aorta carries  
a) Blood from liver to lung                                      b) Blood from lung to heart  
c) Pure blood from heart to lung                                      d) Impure blood from heart to lung
239. In which, blood circulation starts and ends in capillaries?  
a) Portal system                      b) Capillary system                      c) Arterial system                      d) Lymphatic system

240. Papillary muscles are found in mammalian  
 a) Auricles                      b) Ventricles                      c) Pinna                      d) Eyes
241. The volume of blood each ventricle pumps out during a cardiac cycle is about  
 a) 70 mL                      b) 5000 mL                      c) 7 L                      d) 1200 mL
242. CAD stands for  
 a) Carotid Arterial Dysfunction                      b) Cerebral Artery Dysfunction  
 c) Coronary Artery Disease                      d) Calcium Activated Disease
243. Blood pressure instrument records  
 a) Systolic pressure                      b) Diastolic pressure                      c) Both (a) and (b)                      d) None of these
244. Heart of elephant is  
 a) Neurogenic                      b) Myogenic                      c) Both (a) and (b)                      d) None of these
245. Blood is a  
 a) Mobile connective tissue                      b) Liquid connective tissue  
 c) Both (a) and (b)                      d) Semisolid connective tissue
246. Choose the correct statement about SA node  
 I. Located at lateral wall of the right atrium  
 II. Herat of heart  
 III. It initiates the rhythmic contractile activity of the heart and maintains it  
 IV. It is called pace keeper of the heart  
 V. It is called pace maker of the heart  
 The option with correct statements is  
 a) All except III                      b) All except IV                      c) All except V                      d) None of these
247. The systemic circulation provides nutrients, ...A... and other essential substances to the ...B... and takes ...C... and other harmful substances away for elimination  
 Choose the correct option for A, B, C and D  
 a) A-CO<sub>2</sub>, B-tissue, C-O<sub>2</sub>                      b) A-O<sub>2</sub>, B-tissue, C-CO<sub>2</sub>  
 c) A-O<sub>2</sub>, B-tissue, C-NO<sub>2</sub>                      d) A-NO<sub>2</sub>, B-tissue, C-CO<sub>2</sub>
248. In an ECG, the depolarization of atria is indicated by  
 a) P-wave                      b) Q-wave                      c) R-wave                      d) S-wave
249. Which of the following is first to receive lymphatic duct from legs?  
 a) Left subclavian vein                      b) Right subclavian vein  
 c) Right lymphatic duct                      d) Thoracic lymphatic duct
250. All vertebrates possesses a ...A... . Fishes have a ...B... chambered heart with atrium and ventricles. Amphibians and reptiles have a ...C... chambered heart. Bird and mammals have ...D... chambered of heart  
 Choose the correct option  
 a) A-muscular chambered heart, B-3, C-2, D-4  
 b) A-muscular chambered heart, B-2, C-3, D-4  
 c) A-muscular chambered heart, B-4, C-3, D-2  
 d) A-muscular chambered heart, B-3, C-4, D-2
251. I. Atrioventricular valves  
 II. Semilunar valves  
 III. Right atrium  
 IV. Right ventricle  
 V. SAN  
 The correct pathway of RBC of from the option given below  
 a) V→III→I→IV→II                      b) V→III→I→II→IV                      c) V→III→IV→I→II                      d) I→II→III→IV→V
252. The number of valves that guard the opening at the origin of carotico systemic aorta is  
 a) Two                      b) Three                      c) Four                      d) One
253. G-6-P dehydrogenase deficiency is associated with haemolysis of  
 a) Lymphocytes                      b) RBCs                      c) Platelets                      d) Leucocytes

254. Blood that flows from the lungs to the heart is bright red rather than dark red due to
- a) Carbon dioxide
  - b) Oxygen
  - c) Both (a) and (b)
  - d) Due to mixing of sputum
255. Components essential for RBC formation is
- a) Iron
  - b) Vitamin-B<sub>12</sub>
  - c) Folate
  - d) All of these
256. What will happen if a Rh – ve person is exposed to the Rh + ve person?
- a) Antigen formation takes place
  - b) –ve and +ve Rh antigen cancel out each other
  - c) Nothing will happen
  - d) Antibody will form
257. Impulse of heart beat originates from
- a) SA-node
  - b) AV-node
  - c) Vagus nerve
  - d) Cardiac nerve
258. What will happen if a Rh<sup>-</sup> person donate blood to a Rh<sup>+</sup> person for the first time?
- a) Rh<sup>-</sup> person will die
  - b) Rh<sup>+</sup> person will die
  - c) Nothing will happen to both
  - d) Rh<sup>-</sup> will line and Rh<sup>+</sup> would be
259. Erythroblastosis foetalis is a disease in which
- a) Adult have severe anaemia and jaundice
  - b) Female have severe anaemia and jaundice
  - c) Male have severe anaemia and jaundice
  - d) Foetus have severe anaemia and jaundice
260. At high altitude, RBCs of human blood will
- a) Increase in number
  - b) Decrease in number
  - c) Decrease in size
  - d) Increase in size
261. Bilirubin is the breakdown product of
- a) Haemoglobin
  - b) RBC
  - c) WBC
  - d) Platelets
262. Which of the following is right about blood coagulation?
- I. Vitamin-B is necessary for the formation prothrominase
  - II. Conversion of fibrin to fibrinogen
  - III. Conversion of prothrombin to prothrombinase
- The option with correct combination is
- a) I and II
  - b) II and III
  - c) III and I
  - d) None of these
263. Pace maker is
- a) Instrument for measuring heart beat
  - b) Instrument for measuring pulse rate
  - c) AV node that provides impulse for heart beat
  - d) Sinu-auricular node that provides impulse for heart beat
264. When all the four-chambers of the heart are in relaxed state, it is called
- a) Joint systole
  - b) Joint diastole
  - c) Systole
  - d) Diastole
265. The pH of blood is
- a) Between 7-8
  - b) Between 2-4
  - c) Between 12-14
  - d) Between 2-5
266. Manifestation of increase in the blood pressure of a person is called
- a) Hypertension
  - b) Artherosclerosis
  - c) Arteriosclerosis
  - d) None of these
267. Lymph is a colourless fluid containing specialised
- a) RBC
  - b) Lymphocytes
  - c) Cells
  - d) Long lined cells
268. Cardiac cycle is a cyclic event that occur in
- a) Single beat
  - b) Double beat
  - c) Atrium
  - d) Ventricle
269. Increase of blood sugar level is known as
- a) Diabetes insipidus
  - b) Diabetes mellitus
  - c) Hypoglycemia
  - d) Both (a) and (b)
270. The animal, which has oval RBCs is
- a) Humans
  - b) Camel
  - c) Dog
  - d) Fish
271. The difference between blood and lymph is
- a) Blood has RBCs and WBCs, while lymph has no cells
  - b) Blood has RBCs and WBCs, while lymph has only WBCs
  - c) Blood has WBCs, while lymph has RBCs

- d) Blood has dissolve salt, while lymph has no cells
272. All reptiles have a three-chambered heart except  
 a) Snake                                      b) Crocodile                                      c) Lizard                                      d) Both (b) and (c)
273. 'Heart of Heart' is  
 a) SA-node                                      b) AV-node                                      c) Bundle of His                                      d) Purkinje fibres
274. The cardiac pacemaker in a patient fails to function normally. The doctors find that an artificial pacemaker is to be grafted in him. It is likely that it will be grafted at the site of  
 a) Atrioventricular bundle                                      b) Purkinje system  
 c) Sinuatrial node                                      d) Atrioventricular node
275. The first heart sound is produced when  
 a) Diastole begins                                      b) Semilunar valve close quickly  
 c) Interventricular pressure decreases                                      d) Bicuspid and tricuspid valve close quickly
276. In the diagram, the vertical section of the human heart is given, certain parts have been indicated by alphabets; choose the option in which these alphabets have been correctly matched with their respective parts



- a) A-Aorta, B-Pulmonary vein, C-Pulmonary arteries, D-Left ventricle, E-Semilunar valves, F-Left auricle, G-Right auricle, H-Superior vena cava, I-Right ventricle, J-Tricuspid valves, K-Inferior vena cava
- b) A-Aorta, B-Pulmonary artery, C-Pulmonary veins, D-Left auricle, E-Tricuspid and mitral valves, F-Left ventricle, G-Right ventricle, H-Inferior vena cava, I-Right auricle, J-Semilunar valves, K-Superior vena cava
- c) A-Aorta, B-Superior vena cava, C-Inferior vena cava, D-Right ventricle, E-Tricuspid and mitral valves, F-Right auricle, G-Left auricle, H-Pulmonary vein, I-Left ventricle, J-Semilunar valves, K-Pulmonary artery
- d) A-Aorta, B-Superior vena cava, C-Inferior vena cava, D-Left ventricle, E-Semilunar valves, F-Left auricle, G-Right auricle, H-Pulmonary artery, I-Right ventricle, J-Tricuspid valves, K-Pulmonary vein
277. Open circulatory system is present in  
 a) Arthropods and mammals                                      b) Mollusca and aves  
 c) Arthropods and Mollusca                                      d) Mammals and aves
278. Which wave of human heart out of PQRST is used for determining the heart beat of an individual?  
 a) P                                      b) QRS                                      c) T                                      d) RS
279. Cardiac centre is present in  
 a) Medulla oblongata                                      b) Cerebrum                                      c) Pons                                      d) Epithalamus
280. Refer the statements  
 I. Carbonic anhydrase is present in the erythrocytes.  
 II. In erythrocytes, the carbon dioxide combines with water and is transported.  
 a) Statement I is correct and is responsible for statement II                                      b) Statement I is not correct but statement II is correct  
 c) Both statements I and II are wrong                                      d) Statement I is correct but not involved in statement II
281. Generally, artificial pacemaker consists of one battery made up of  
 a) Nickel                                      b) Dry cadmium  
 c) Photo sensitive material                                      d) Lithium
282. Plasma is a straw coloured viscous fluid constituting nearly ...A...% of the blood, ...B...% of the plasma is water and the protein constitutes ...C...% of it.

Choose the correct option for the blanks A, B and C

- a) A-55, B-90-92, C-6-8    b) A-45, B-70-80, C-6-8    c) A-35, B-90-92, C-6-8    d) A-45, B-90-92, C-6-8

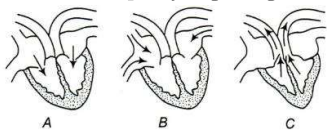
283. Coronary heart disease is due to the inadequate blood supply to

- a) Heart ventricle    b) Heart auricle    c) Heart volume    d) Heart muscles

284. The role of pace maker in heart is to

- a) Accelerate blood circulation    b) Inhibit backflow of blood  
c) Initiate heart beat    d) Stimulate blood pressure

285. The accompanying diagram shows the three stages in the cardiac cycle



Which of the following is the correct sequence?

- a) B, A, C    b) B, C, A    c) C, A, B    d) C, B, A

286. What is the correct order of events occurring in blood clotting?

- I. Conversion of fibrinogen to fibrin  
II. Formation of clot  
III. Thromboplastin formation  
IV. Conversion of prothrombin to thrombin

Choose the correct option

- a) III, II, I and IV    b) III, IV, I and II    c) III, IV, II and I    d) IV, I, III and II

287. Which one is correct?

- a) Blood = Plasma + RBCs + WBCs + Blood platelets  
b) Plasma = Blood – Lymphocytes  
c) Lymph = Plasma + RBCs + WBCs  
d) Both (b) and (c)

288. What happens when the pacemaker is non-functional?

- a) Only the auricles will contract rhythmically  
b) The cardiac muscles do not contract in a coordinated manner rhythmically  
c) Only ventricles will contract rhythmically  
d) Cardiac muscle will contract in a coordinated manner

289. Bicuspid and tricuspid valve opens when

- a) Blood from the pulmonary artery and vena cava flows into the left and right ventricles, respectively  
b) Blood from the pulmonary vein and vena cava flows into left and right ventricles, respectively  
c) Blood from the pulmonary vein and vena cava flows into left and right atrium, respectively  
d) Oxygen from the pulmonary vein and vena cava flows into left and right atrium, respectively

290. Lead concentration in blood is considered alarming if it is

- a) 20 µg/100 mL    b) 30 µg/100 mL    c) 4 – 6 µg/100 mL    d) 10 µg/100 mL

291. Systolic pressure in adult human is

- a) 120 mm Hg    b) 120/80 mm Hg    c) 150/120 mm Hg    d) 80 mm Hg

292. Which nodal fibres lies along the right and left ventricles (interventricular septum)?

- a) Bundle of His    b) Purkinje fibre    c) Neural tissue fibre    d) Cardiac tissue fibre

293. Which of the following option describes all the components of human blood?

- a) A and B blood group    b) AB and O blood group  
c) Rh and ABO blood group    d) Rh and AB blood group

294. ECG is a measure of

- a) Rate of heart beat    b) Difference in electric potential  
c) Volume of blood pumped    d) Ventricular contraction

295. Neutrophils are also called

- I. acidophils



II. heterophils

III. polymorphs

Choose the option with suitable terms

- a) I and II                      b) II and III                      c) I and III                      d) All of these

296. Factors for coagulation or clotting of the blood are also present in the ...A... in an ...B... form. Plasma without the clotting factors is called ...C....

Choose the correct option for the blanks A, B and C

- a) A-plasma, B-inactive, C-serum                      b) A-plasma, B-active, C-serum  
c) A-plasma, B-inactive, C-lymph                      d) A-plasma, B-active, C-lymph

297. Grouping of ABO blood is based on the

- a) Surface antigens present on RBCs                      b) Surface lipids present on the cell membrane  
c) Nature of all constituents                      d) Nature of RBC and WBC

298. Individuals having Rh antigen are called

- a) Rh negative (Rh - ve)                      b) Rh positive (Rh + ve)  
c) Rh ( $\pm$ )                      d) Rhesus positive

299. Which of the following statement is incorrect about the lymph

- I. Lymph is colourful as it has haemoglobin but no RBC  
II. The fluid present in the lymphatic system is called lymph  
III. It contains specialised lymphocytes which are responsible for the immunity of the body  
IV. Lymph is an important carrier for nutrients and hormones  
V. Fats are absorbed through the lymph in the lacteals present in the intestinal villi

Choose the correct option

- a) Only I                      b) III and IV                      c) II and III                      d) Only IV

300. Which of the following is a cell fragment?

- a) Blood platelets                      b) Bone cells                      c) Lymphocytes                      d) Leucocytes

301. Why 1st child of Rh<sup>+</sup> husband and Rh<sup>-</sup> wife doesn't have erythroblastosis foetalis?

- a) Due to the absence of Rh antigen in mother's blood  
b) Due to the presence of Rh antibodies in mother's blood  
c) Due to the absence of Rh antibodies in mother's blood  
d) Both (a) and (c)

302. The thread-like tendons of papillary muscles inserted upon the flaps of tricuspid and bicuspid valves are

- a) Chordae tendinae                      b) Yellow elastin fibres                      c) Reticulate fibres                      d) Collagen fibres

303. Incomplete circulation is found in

- I. reptiles    II. amphibians  
III. birds    IV. mammals

The correct option with appropriate choices is

- a) I and II                      b) III and IV                      c) III and II                      d) I and IV

304. 'Bundle of His' is a part of which one of the following organs in humans?

- a) Heart                      b) Kidney                      c) Pancreas                      d) Brain