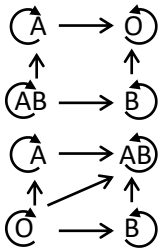
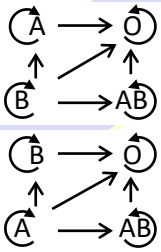
Chapter 02

# Body fluids and circulation

## RANKER'S STUFF

**Q.1** Which of the following representations is correct about blood groups and donor compatibility?

(1) 

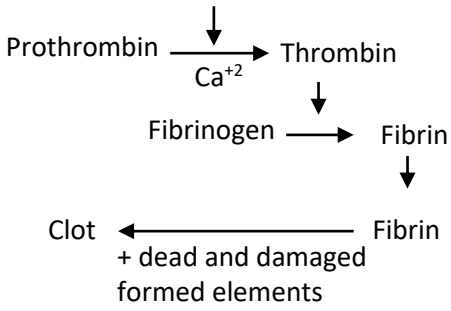

(2) 


(3) 

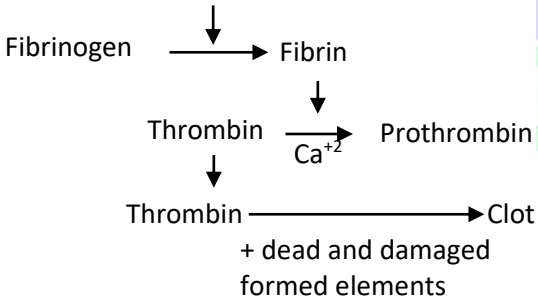

(4) 


**Q.2** Which of the following pathways is correct for blood clotting.

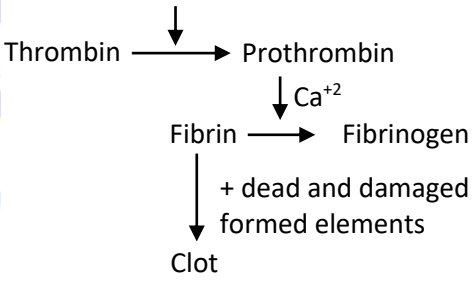
(1) Thromboplastin or Thrombokinase
(From injured platelets/tissues)



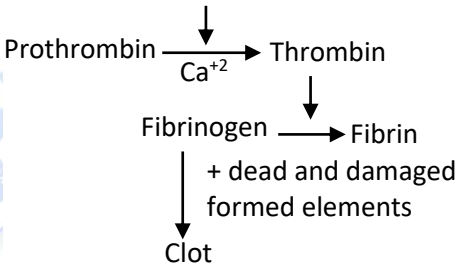

(2) Thromboplastin or Thrombokinase




(3) Thromboplastin or Thrombokinase




(4) Thromboplastin or Thrombokinase




**Q.3** Artificial pacemaker is required when a person is suffering from :
(1) Arteriosclerosis
(2) Atherosclerosis
(3) Irregularity of heart beat
(4) Hypertension

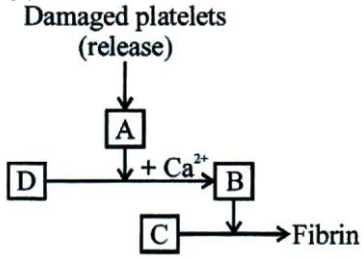
**Q.4** High blood pressure can potentially harm the vital organs like :

| | |
|---|---|
| A - Heart | B - Brain |
| C - Kidneys | D - Lungs |
| (1) A and B only | (2) B and C only |
| (3) A, B and C | (4) A, B, C and D |

**Q.5** Which of the following WBCs are phagocytic cells:

| | |
|---|---|
| (a) Monocytes | (b) Neutrophils |
| (c) Basophils | (d) Eosinophils |
| (1) Only (a) | (2) (a) and (b) |
| (3) (a) and (c) | (4) (c) and (d) |

**Q.6** Identify A, B and C in the given below blood clotting process.




**Options :**

| | A | B | C |
|---|---|---|---|
| (1) | Thromboplastin | Prothrombin | Fibrinogen |
| (2) | Thrombin | Fibrinogen | Thrombo-Kinase |
| (3) | Thromboplastin | Thrombin | Fibrinogen |
| (4) | Prothrombin | Thrombin | Fibrinogen |

**Q.7** Read the following statements (A-D) :

A. RBCs are the most abundant of all the cells in blood

B. A healthy adult man has on an average 5 millions to 5.5 millions of RBCs $mm^{-3}$ of blood

C. RBcs are formed in liver in the adults

D. RBCs are devoid of nucleus in most of the mammals and are biconcave in shape

How many of the above statements are incorrect:

(1) Four (2) Three (3) Two (4) One

**Q.8** Erythroblastosis foetalis can be avoided by administering ..... to the mother immediately after the delivery of first child :

(1) Vitamins (2) Antibiotics

(3) Anti-Rh antibodies (4) Rh-antigen

**Q.9** Read the following (A - D) Statements :

(A) Plasma is a straw coloured, viscous fluid constituting 55 percent of the blood.

(B) 90-92 percent of plasma is water and proteins contribute 6-8 percent of it.

(C) Globulins are needed for clotting or coagulation of Blood

(D) Fibrinogens are primarly involved in defence mechanism of the body.

How many of the above statements are **correct :**

(1) Four (2) Three (3) Two (4) One

**Q.10** Which of the following is **incorrect** match of WBCs with its functions :

(1) Neutrophils = Phagocytic cells

(2) Eosinophils = Resist infections and are also associated with allergic reactions

(3) Basophils = Secrete histamine, serotonin and heparin

(4) T-Lymphocytes = Produce antibodies

**Q.11** Which of the following options represents the pulmonary circulation in human being-

(1) Left Auricle $\xrightarrow{\text{Oxygenated blood}}$ Lungs $\xrightarrow{\text{Deoxygenated blood}}$ Right ventricle

(2) Right ventricle $\xrightarrow{\text{Deoxygenated blood}}$ Lungs $\xrightarrow{\text{Oxygenated blood}}$ Left auricle

(3) Left Auricle $\xrightarrow{\text{Deoxygenated blood}}$ Lungs $\xrightarrow{\text{Oxygenated blood}}$ Right ventricle

(4) Right ventricle $\xrightarrow{\text{Oxygenated blood}}$ Lungs $\xrightarrow{\text{Deoxygenated blood}}$ Left auricle

**Q.12** Correctly match column-I with column-II

| | Column-I | | Column-II |
|---|---|---|---|
| A | Cardiac arrest | (i) | Heart not pumping blood effectively |
| B | Heart Failure | (ii) | Heart muscle is suddenly damages |
| C | Heart attack | (iii) | Acute chest pain |
| D | Angina | (iv) | Heart stops beating |

(1) A→(i), B→(ii), C→(iii), D-(iv)

(2) A→(iv), B→(ii), C→(i), D-(iii)

(3) A→(iv), B→(i), C→(ii), D-(iii)

(4) A→(ii), B→(iii), C→(i), D-(iv)

**Q.13** Match the Column-I with Column-II.

| | Column-I | | Column-II |
|---|---|---|---|
| A | Fish | (i) | 3-chambered heart |
| B | Amphibia | (ii) | Incomplete double circulation |
| C | Birds | (iii) | 4-chambered heart |
| D | Angina | (iv) | Single circulation |
| | | (v) | 2-chambered heart |
| | | (vi) | Double circulation |

(1) A→(i), (ii) B→(iii), (vi) C→(iv), (v)

(2) A→ (i), (iv) B→(v), (ii) C→(iii), (vi)

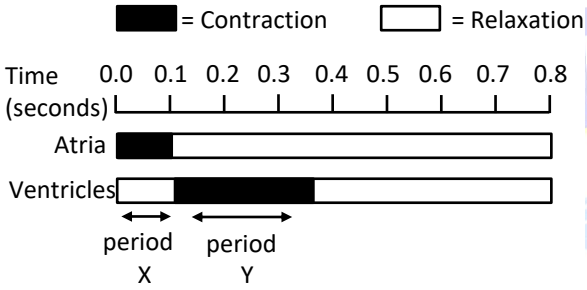
(3) A→(v), (iv) B→(i), (ii) C→(iii), (vi)

(4) A→(iii), (ii) B→(i), (iv) C→(v), (vi)

**Q.14** In which of the following can decrease the rate of heart beat ?

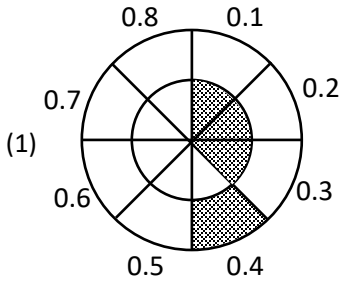
(A) Sympathetic neural signals.
(B) Parasympathetic neural signals.
(C) Adrenal medullary hormones.
(D) Vagus nerve.
(E) Thyroxine hormone
(F) Acetylcholine
(1) A, C, E (2) D, E, F (3) A, C, D (4) B, D, F

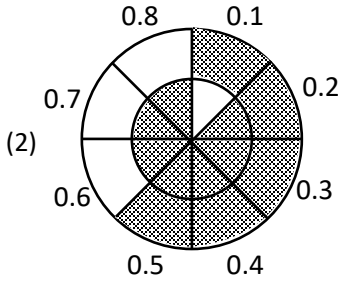
**Q.15** Diagram represent one cardiac cycle lasting 0.8s and to the possible answers that follow it. Which answer describes the events that occur during period X?

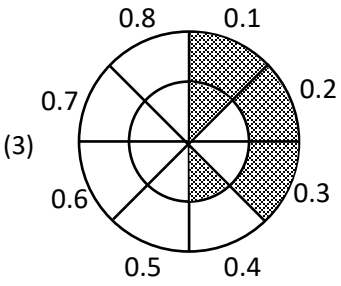


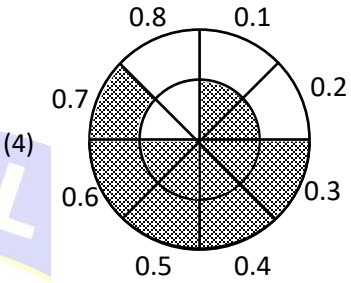

(1) Atrial systole and ventricular diastole
(2) Atrial diastole and ventricular systole
(3) Atrial diastole and ventricular diastole
(4) Atrial systole and ventricular systole

**Q.16** Which of the below given cardiac cycle is possible in case of human heart, if the shaded and nonshaded sectors represent different events (systole or diastole)

(1)



(2)



(3)


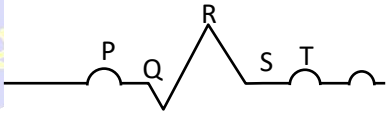

(4)



**Q.17** Which information is **incorrect** about cardiac output ?
(1) It's average value is 5000 ml
(2) The stroke volume multiplied by the heart rate, gives the cardiac output.
(3) It is the volume of blood pumped out by each ventricle per minute.
(4) The body has no ability to alter the cardiac output.

**Q.18** Which of the following is the diagrammatic representation of standard electrocardiogram (ECG)?

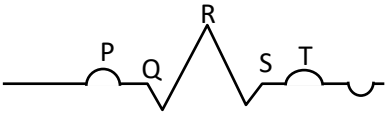
(1)



(2)



(3)



(4)



**Q.19** During ventricular systole :
(1) Semilunar valves are closed
(2) About 30 percent blood is pumped into aorta from ventricle
(3) Tricupid and Bicuspid valves are closed
(4) Ventricular pressure decline

**Q.20** The cardiac impulse is initiated and conducted further upto ventricle. The correct sequence of conduction of impulse is :

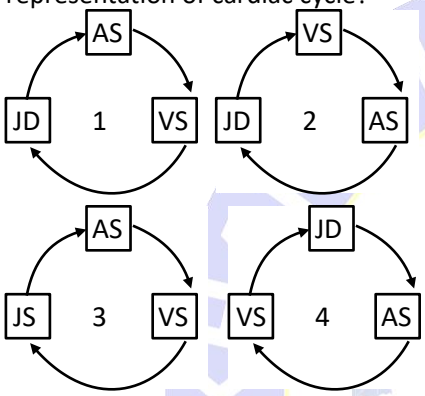
(1) SA Node → AV → Node → urkinje → fibre → AV Bundle

(2) SA Node → Purkinje fibre → AV Node → AV Bundle

(3) SA Node → AV Bundle → AV Node → Purkinje fibre

(4) SA Node → Purkinje fibre → AV Bundle → AV Node

**Q.21** Which of the following diagram is/are wrong representation of cardiac cycle?




(1) 1 and 2 (2) 2 and 3

(3) 3 and 4 (4) 1 and 4

**Q.22** Match the terms given under Column 'I' with their functions given under Column 'II' and select the answer from the options given below:

| | Column-I | | Column-II |
|---|---|---|---|
| A | Lymphatic System | (i) | Carries oxygenated blood |
| B | Pulmonary vein | (ii) | Immune Response |
| C | Thrombocytes | (iii) | To drain back the Lymphocytes tissue fluid to the circulatory system |
| D | Lymphocytes | (iv) | Coagulation of blood |

(1) A→(i), B→(ii), C→(iii), D-(iv)

(2) A→(iii), B→(i), C→(iv), D-(ii)

(3) A→(iii), B→(i), C→(ii), D-(iv)

(4) A→(ii), B→(i), C→(iii), D-(iv)

**Q.23** Cardiac activity could be moderated by the autonomous neural system. Tick the correct answer:

(1) The parasympathetic system stimulates heart rate and stroke volume

(2) The sympathetic system stimulates heart rate and stroke volume

(3) The parasympathetic system decreases the heart rate but increase stroke volume

(4) The sympathetic system decreases the heart rate but increase stroke volume.

**Q.24** Which among the following is **correct** during each cardiac cycle ?

(1) The volume of blood pumped out by the Rt and Lf ventricles is same.

(2) The volume of blood pumped out by the Rt and Lf ventricles is different

(3) The volume of blood received by each atrium is different

(4) The volume of blood received by the aorta and pulmonary artery is different.

**Q.25** Which one of the following is Agranulocyte WBC ?

(1) Neutrophil (2) Eosinophil

(3) Basophil (4) Monocyte

**Q.26** During the process of blood coagulation vitamin-K help in the :

(1) Formation of thromboplastin

(2) Formation of prothrombin

(3) Conversion of prothrombin to thrombin

(4) Conversion of fibrinogen to fibrin

**Q.27** What would be the heart rate of a a person if the cardiac output is 5L, blood volume in the ventricles at the end of diastole is 100mL and at the end of ventricular systole is 50 mL?

(1) 50 beats per minute

(2) 100 beats per minute

(3) 75 beats per minute

(4) 125 beats per minute

**Q.28** Match the column

| | Column I | | Column II |
|---|---|---|---|
| (a) | Depolarisation of the atria | (p) | QRS complex |
| (b) | Repolarisation of the ventricles | (q) | P-wave |
| (c) | Depolarisation of the ventricles | (r) | T-wave |

(1) a→(p), b→(q), C→(r)

(2) a→(r), b→(q), C→(p)

(3) a→(q), b→(r), C→(p)

(4) a→(q), b→(p), C→(r)

**Q.29** Match the column

| | Column I | | Column II |
|---|---|---|---|
| (a) | RBC | (i) | Coagulation |

| | | | |
|---|---|---|---|
| (b) | Systole | (ii) | Gas transport |
| (c) | Platelets | (iii) | Resist infection |
| (d) | AB groups | (iv) | Contraction of heart |
| (e) | Eosinophils | (v) | Universal recipients |

(1) a→(ii), b→(i), c→(iv), d→(v), e→(iii)
(2) a→(ii), b→(iv), c→(i), d→(iii), e→(v)
(3) a→(ii), b→(iv), c→(i), d→(v), e→(iii)
(4) a→(iii), b→(iv), c→(i), d→(v), e→(ii)

**Directions:** In the following questions, a statement of assertion is followed by a statement of reason. Mark the correct choice as:

(**A**) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(**B**) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(**C**) If Assertion is true but Reason is false.
(**D**) If both Assertion and Reason are false.

**Q.30** **Assertion:** In most of the mammal RBCs are devoid of nucleus.
**Reason:** Red colour is filled in the entire cytoplasm of RBCs, iron containing complex protein called haemoglobin.
(1) A (2) B (3) C (4) D

**Q.31** **Assertion (A)** : Blood coagulates in uninjured blood vessels.
**Reason (R)** : Uninjured blood vessels release an anticoagulant heparin.
(1) A (2) B (3) C (4) D

**Q.32** **Assertion**: The clotting process can occur in the absence of all cellular elements except platelets.
**Reason**: Activated platelets release vitamin K.
(1) A (2) B (3) C (4) D

**Q.33** **Assertion** : When there is a fall in the blood pressure due to loss of blood volume, this is compensated by vasoconstriction of veins.
**Reason** : Veins hold the extra amount of blood which can be shifted to the arteries as required.
(1) A (2) B (3) C (4) D

**Q.34** **Assertion**: Open circulatory system is more efficient than closed circulatory system.
**Reason**: In closed circulatory system rather than in open circulatory system, the blood flow is slow.
(1) A (2) B (3) C (4) D

**Q.35** **Assertion**: Left atrium possesses the thickest muscles.
**Reason**: Right atrium receives blood from the lungs.
(1) A (2) B (3) C (4) D

**Q.36** **Assertion**: Sympathetic nerves can increase the strength of ventricular contraction neural signals.
**Reason:** To increase the cardiac output parasympathetic neural signals synergistically act with sympathetic neural signal.
(1) A (2) B (3) C (4) D

**Q.37** **Assertion**: Fibrins are produced by the conversion of inactive fibrinogens in the plasma, in the presence of enzyme thrombin.
**Reason:** Plasma without fibrinogen and blood corpuscles is called serum.
(1) A (2) B (3) C (4) D

**Q.38** **Assertion** : Prothrombinase enzyme act as antiheparin.
**Reason** : Heparin prevent coagulation of blood in blood vessels.
(1) A (2) B (3) C (4) D

# ANSWER KEY

## RANKER'S STUFF

| Que. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ans. | 3 | 1 | 3 | 3 | 2 | 3 | 4 | 3 | 3 | 4 | 2 | 3 | 3 | 4 | 1 |
| Que. | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| Ans. | 4 | 4 | 1 | 3 | 3 | 2 | 2 | 2 | 1 | 4 | 2 | 2 | 3 | 3 | 2 |
| Que. | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | | | | | | | |
| Ans. | 4 | 3 | 1 | 4 | 4 | 3 | 3 | 2 | | | | | | | |

## NEET-FLASHBACK

| Que. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ans. | 2 | 1 | 3 | 4 | 2 | 2 | 1 | 1 | 2 | 2 | 4 | 1 | 2 | 4 | 2 |
| Que. | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| Ans. | 2 | 4 | 1 | 4 | 4 | 1 | 1 | 2 | 4 | 4 | 3 | 3 | 2 | 1 | 4 |
| Que. | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 39 | 40 | 41 | | | |
| Ans. | 1 | 2 | 3 | 2 | 1 | 4 | 4 | 4 | 3 | 4 | 4 | 2 | | | |