

Topic :- Body Fluids And Circulation

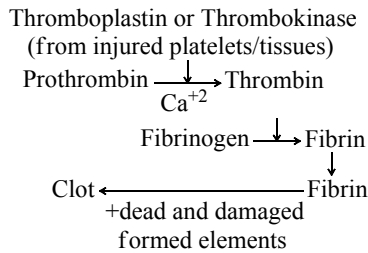
- 1 (d)
Due to different pressure between the caval and atrium blood passes from the post caval to the diastolic right atrium of human heart.
- 2 (a)
Lub The first heart sound is associated with the closure of tricuspid and bicuspid valves
Dub The second heart sound is associated with the closure of semilunar valves
- 3 (b)
- | Blood Group | Receive Blood | Donate Blood |
|-------------|---------------|--------------|
| O | O | O, A, B, AB |
| A | A, O | A, AB |
| B | B, O | B, AB |
| AB | O, A, B, AB | AB |
- 4 (b)
Electrocardiograph is not the recording of electrical changes during the cardiac cycle. Rather, it is the graph of electrical activity of the heart
- 5 (d)
Cardiac output is the volume of blood pumped by the ventricles per unit time.
Cardiac output = Stroke volume \times Heart rate
= 70mL/heart beat
Stroke volume is volume of blood pumped out of the heart at each beat.
Heart rate is number of beats per minute.
If heart rate and stroke volume increase, cardiac output also increases.
- 6 (a)
There are two categories of snake venoms-neurotoxic (*e.g.*, cobras, kraits, sea snakes) and haemotoxic (*e.g.*, vipers). Venom of viper cause tissue destruction and widespread haemorrhage. It affects the circulatory system.
- 7 (d)
Hypophysial portal system is a minor portal system that occurs in higher vertebrates. The

system consists of a single Hypophysial portal vein, which is formed by capillaries in hypothalamus. It passes into anterior lobe of pituitary gland and breaks up into capillaries there.

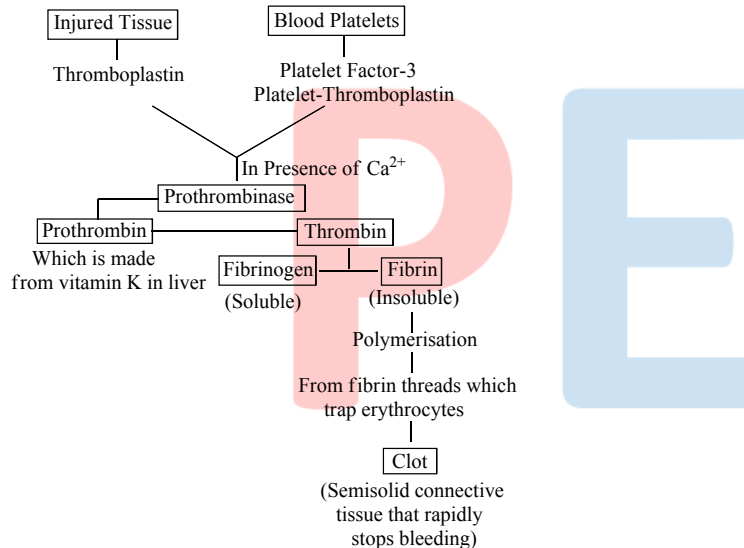
8 **(b)**

Blood leaving the liver and going towards the heart is rich in urea.

9 **(d)**



By the traumatised cell at the place of injury



10 **(a)**

Gaseous exchange between blood and alveolar air across respiratory membrane occurs by simple diffusion. The blood drained from lungs includes not only oxygenated blood but also some deoxygenated blood that has supplied its oxygen to tissue cells. The p_{O_2} of this blood is about 95-97 mm hg.

After receiving this blood from the lungs, the heart pumps it into the arteries, which carry it to all parts of the body, while flowing through the capillary networks in various tissues, his blood supplies oxygen to all cells in exchange of carbon dioxide. The average p_{O_2} in tissue fluids is about 40mm Hg, whereas the p_{O_2} in arterial blood supplying the tissues is 95 mm Hg. This pressure difference ensures vary rapid deoxygenation of the unstable oxyhaemoglobin in the tissue and diffusion of released oxygen into tissue fluid and then into the cells. The arterial blood normally supplies about 25% of its O_2 to the tissue.

- 11 **(d)**
All of the above.
Coronary Artery Disease (CAD) Often referred to as atherosclerosis, affects the vessels that supply blood to heart muscle. It is caused by the deposition of fat, cholesterol, calcium and fibrous tissue, which makes lumen of the arteries narrower
Angina It is also called 'angina pectoris'. A symptom of acute chest pain appears when not enough oxygen is reaching the heart muscle
Heart failure It means the state of heart when it is not pumping blood effectively enough to meet the needs of the body. It is sometimes called congestive heart failure because congestion of the lungs is one of the main symptoms of this disease
Cardiac-Arrest When the heart stops beating
Heart Attack When the heart muscles are suddenly damaged by an inadequate blood supply
- 12 **(c)**
Tunica media is the middle, thickest layer of blood vessels and is made up of yellow (elastin) fibres and involuntary or unstriated or smooth muscle fibres. Tunica externa is rich in collagen fibres but has less elastin fibres, while tunica interna is made up of a single layer of simple squamous epithelial cells (endothelium) and yellow elastin fibres.
- 13 **(c)**
Duration of a cardiac cycle is 0.8 sec out of which atrial systole takes 0.1 sec, ventricular systole takes 0.3 sec and complete cardiac cycle occurs in 0.4 sec
- 14 **(a)**
Myocardium consists of cardiac muscles resembling the striated muscles structurally and smooth muscles functionally. Myocardium is the middle layer. It contains epicardium on outside and endocardium towards inside.
- 15 **(b)**
Normal activities of heart are regulated intrinsically. *i.e.*, auto regulated by specialised muscle (nodal tissue). Hence, the heart is called myogenic
- 16 **(d)**
The closing of atrioventricular valves during ventricular systole produces the first heart sound, lub.
During ventricular diastole, the semilunar valves are closed and blood is forced back into the ventricles. Due to the high pressure developed in the vessels, this causes the second heart sound, dub
- 17 **(c)**
After clotting of blood, a water like fluid remains, it is called serum. Fibrinogen protein and other clotting factors are absent in this serum.

- 18 **(a)**
Autonomic nervous system.
A special neural centre in medulla oblongata can moderate the cardiac function through Autonomic Nervous System (ANS). Medulla oblongata is called the cardiac centre
- 19 **(b)**
Capillaries are microscopic and smallest blood vessels. Their exceedingly thin walls consists of just a thin tunica interna. Most tissues have a rich capillary supply but cartilage and epithelia lack capillaries. Capillaries do not function independently, instead they tend to form interweaving networks called capillary beds. The true capillaries number 10 - 100 per capillary beds depending on the organs or tissues served.
- 20 **(c)**
The average quantity of haemoglobin in males is 14.5 g/100 mL blood, in females 12.5 g/100 mL blood and in new born child the average amount of haemoglobin is 16.5 g/100 mL blood.

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ANSWER-KEY										
Q.	1	2	3	4	5	6	7	8	9	10
A.	d	a	b	b	d	a	d	b	d	a
Q.	11	12	13	14	15	16	17	18	19	20
A.	d	c	c	a	b	d	c	a	b	c

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