

# Body Fluids and Circulation



## TRY YOURSELF

## ANSWERS

- Plasma without the blood clotting factors is called serum.
- Two functions of plasma are :
  - It helps in maintaining body temperature by absorbing and releasing heat as needed.
  - Plasma proteins help in preventing blood loss, as fibrinogen and prothrombin help in blood clotting.
- Biconcave disc shape of RBCs has more surface area than a sphere and is thus advantageous in gaseous exchange.
- Lifespan of various blood corpuscles is as follows :
  - RBCs - about 120 days;
  - WBCs - about 13 to 20 days;
  - Platelets - about 8 to 9 days.
- Shape of nucleus in different cells:
  - Monocyte - bean-shaped
  - Basophils - two-three lobed nucleus
  - Platelets - no nucleus
- Genetics of blood groups:  
Three alleles are :  $I^A$ ,  $I^B$ ,  $I^O$ .  
Genotype :  $I^A/I^B$ ,  $I^A/I^O$ ,  $I^B/I^B$ ,  $I^B/I^O$ ,  $I^A/I^A$ ,  $I^O/I^O$   
Phenotype : A, B, AB, O
- Three stages of blood clotting are:
  - Vascular spasm or vasoconstriction, a brief and intense contraction of blood vessels to reduce loss of RBCs.
  - Formation of a platelet plug, *i.e.*, accumulation and adhesion of platelets at the site of blood vessel injury; and
  - Blood clotting or coagulation, which reinforces the platelet plug with fibrin mesh that acts as a glue to hold the clot.
- Two functions of lymph are :
  - Lymph transports oxygen, hormones and nutrients to different parts of the body and removes metabolic waste from the cells.
  - It helps in absorption and transport of fat and fat soluble vitamins from the small intestine through lymphatic vessels.
- Valves present in the heart are:
  - bicuspid (mitral) valve : present between left atrium and left ventricle
  - tricuspid valve : present between right atrium and right ventricle
  - pulmonary semilunar valve : present between pulmonary artery and right ventricle.
  - aortic semilunar valve : present between aorta and left ventricle.
- An adequate cardiac output helps to keep our blood pressure at the normal levels, which is required to supply oxygen-rich blood to our brain and other vital parts of our body.
- Cardiac pacemaker or SA node is found in the upper wall of the right atrium and is responsible for creating an action potential to start the wave of electrical stimulation that starts atrial contraction.
- First heart sound called "lub" is produced by vibrations generated by the closure of atrioventricular (bicuspid and tricuspid) valves.
- Cardiac cycle is the term referring to the cardiac events involving one cycle of contraction phase (called systole) and the relaxation phase (called diastole). One complete cardiac cycle takes about 0.8 seconds.
- P wave shows atrial depolarisation while QRS complex (waves) represents ventricular depolarisation.
- Electrocardiograph
- Arteries have narrow lumen because the blood from the heart comes into arteries with lots of pressure. Due to this reason, arteries are thick walled so they do not burst. Hence to maintain same pressure, arteries have narrow lumen.
- Differences between pulmonary and systemic circulation are as follows:

	Pulmonary circulation	Systemic circulation
(i)	It consists of flow of deoxygenated blood from right ventricle to the lungs and flow of oxygenated blood from lungs to left atrium.	It consists of flow of oxygenated blood from left ventricle to all parts of the body and flow of deoxygenated blood from different parts to right atrium.
(ii)	Blood flow is for a short distance.	Blood flow is for a longer distance.

18. Renal portal system is present in fishes, reptiles, amphibians and birds.

19. A stent is a tiny wire mesh tube resembling spring coil that is inserted into a narrowed or blocked coronary artery through catheter. It ensures proper blood circulation through coronary artery that supplies blood to the heart.

20. Ebstein's disease is a congenital downward displacement of the tricuspid valve into right ventricle.

