

### Topic :- Body Fluids and Circulation

- 1 (a)  
Extrinsic factors are triggered by thromboplastin. (Factor III), various factors are also needed which are collectively known as intrinsic system because it occurs inside blood vessel
- 2 (c)  
Purkinje fibre are present at both ventricular myocardium for the proper contraction of ventricles
- 3 (c)  
D is the hepatic portal vein and F is the hepatic vein
- 4 (c)  
In pelvic region, each common iliac artery gives out an ilio-lumbar artery to supply the dorsal body wall and then, splits into a long external and short internal iliac arteries. This **external iliac artery** enters into the hindlimb of its side as **femoral artery**. The internal iliac splits into several branches to supply urinary bladder (vesicular), wall of rectum, anal region and also uterus in females.
- 5 (a)  
Sequential events in the heart, which is cyclically repeated is called the cardiac cycle. It consists of systole and diastole of both the atria and ventricle
- 6 (b)  
A-Lungs, B-Body parts, C-Pulmonary artery, D-Pulmonary vein, E-Doesal aocta, F-Vena cava
- 7 (d)  
If chordae tendinae of the tricuspid valve become partially non-functional due to injury then the flow of blood into the pulmonary artery will be reduced.
- 8 (c)  
SA-node (sinu-atrial node) heart beats and thereby sets the basic pace of the heart beat, hence, its name pacemaker. Pacemaker is a bundle of modified cardiac muscles. An

artificial pacemaker is implanted subcutaneously and connected to heart in patients with irregularity in the heart rhythm.

- 9 **(a)**  
**Ventricular Systole**  
Atrial systole force the blood to go to the ventricles. This takes place when tricuspid and bicuspid valves are open
- 10 **(a)**  
Bundle of His is a network of muscle fibres found in between two ventricles
- 11 **(c)**  
When the blood does not remain confined to the blood vessels and flows into spaces in the tissues, it is termed as open circulatory system, *e.g.*, arthropods most molluscs.
- 12 **(c)**  
A-vern, B-artery, C-capillary
- 13 **(a)**  
The lymph acts as a middle man between the blood and the tissue cells as it passes on food and oxygen from blood to tissue cells and hands over excretory wastes, hormones and CO<sub>2</sub> from the body cells to blood.
- 14 **(b)**  
**Fish** Two-chambered heart. One atrium and one ventricle  
**Amphibian and Reptiles**  
Three-chambered heart, Two atrium (one left and one right) and one ventricle mammal  
four-chambered heart (two atria and two ventricle)
- 15 **(a)**  
**Second messengers** are chemicals, which speed up functions of hormones (first messenger).  
**cAMP** (Cyclic adenosine 3-5 monophosphate) is formed from ATP by adenylate cyclase and functions as second messenger for a number of activities, *e.g.*, **adrenaline** mediated glycogenolysis, increased heart beat by speeding up muscle cell contraction, etc.
- 16 **(c)**  
*Agranulocytes are of two types*  
**Lymphocytes** (about 30%) They are smaller with large rounded nucleus. They are non-motile and non-phagocytic. They exists in two major forms: B and T lymphocytes. They produce antibodies, which are the key cells of immune response.  
**Monocytes** (about 4%) They are the largest among all the type of leucocytes. They are motile and phagocytic in nature

- 17 **(a)**  
In human heart, right auricle opens into right ventricle and the auriculo-ventricular aperture is guarded by a tricuspid valve. The opening of left auricle into left ventricle is guarded by bicuspid or mitral valve.
- 18 **(c)**  
**Ventricular Systole** When the contraction of the ventricles occurs immediately after atrial systole, the pressure in the ventricles rises and closes the atrioventricular valves, preventing blood from returning to the atria.  
Then the pressure opens the semilunar valves (three half moon shaped pockets) of aorta and pulmonary artery (the great artery) to make entry of blood into these vessels (ejection)  
This lead to reduced volume of blood into the ventricles (about 40 to 50 mL). The closing of atrioventricular valves during ventricular systole produces the first heart sound lub
- 19 **(c)**  
Pre T-cells are progenitors formed in bone marrow and differentiated elsewhere.
- 20 **(c)**  
The largest RBCs are found in amphibians (*Amphiuma*) of 70 – 80 $\mu$ . In mammals, largest RBCs are found in elephant of 9.4  $\mu$ . The RBCs of man are 7.5 – 8  $\mu$  in size.

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

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