DPP
DAILY PRACTICE PROBLEMS

Class : XIth
Date :

Solutions

Subject : BIOLOGY
DPP No. : 10

Topic :- Body Fluids and Circulation

1 **(b)**
Stroke volume = 70 mL/beat
Heart rate = 72 beat/minute
Cardiac output = Stroke volume × Heart rate
= 70 × 72 = 5040 mL/minute or approximately 5 L/min

2 **(a)**
In crocodiles, birds and mammals left atria receives oxygenated blood and right atria deoxygenated blood

3 **(a)**
Foramen ovale is an opening in the interatrial septum of the foetal heart through which both the atria communicate with each other. In adult this aperture is closed and represented by a small oval depression called fossa ovalis.

4 **(b)**
The heart beat originates from sinoatrial node (SA node) also called **pacemaker**, which lies in the wall of right atrium near the opening of superior vena cava. This can be remedied by surgical grafting of artificial pacemaker in chest of patient.

5 **(a)**
A unique vascular connection exists between the digestive tract and liver called hepatic portal system. The hepatic portal vein carries the blood from the intestine to liver before it is delivered to systemic circulation. A special coronary system of blood vessels is present in our body exclusively for circulation of the blood to and from the cardiac musculature

6 **(c)**
Ventricles are related to both heart and brain.

7 **(a)**
A-SA Node, B-AV Node, C-Bundle of His, D-Purkinje fibres

8 **(c)**
Monocytes (6-8%)

Largest among all types of leucocytes are monocytes. They are motile and phagocytic in nature. Since, they are the direct precursors of macrophages so, after entering into the tissue fluid, they transform into macrophages for phagocytising the invading microbes

9 **(c)**

Lymphatic system.

Lymph is a colourless fluid containing specialised lymphocytes (B and T cells) which are responsible for the immune response of the body. Lymph is also an important carrier for nutrients and hormones, etc. Fats are absorbed by the lymph in the lacteals present in the intestinal villi

10 **(b)**

At high altitudes, the atmospheric oxygen level is less and hence, more RBCs are needed to absorb the required amount of oxygen to survive. That is why, the people living at sea level have around 5 million RBCs/mm^3 of their blood, whereas those living at an altitude of 5400 m have around 8 million RBCs/mm^3 of their blood.

11 **(d)**

Glossopharyngeal nerve controls the posterior part of mouth cavity, therefore, it does not control the heart beats.

12 **(a)**

Lymph.

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13 **(c)**

The term graveyard of RBC is used for spleen

14 **(b)**

When not enough O_2 is reaching to heart muscles.

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 no 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

15 **(b)**

Haemoglobin molecule is made up of two α-chains, which have 141 amino acids and two β –chains with 146 amino acids each.

16 **(a)**

Arteries are blood vessels that carry blood away from the heart towards different organs. They generally contain oxygenated blood (except pulmonary artery which contains deoxygenated blood). The blood flows in an artery under alternate increased pressure and with jerks.

17 **(a)**

Autoexcitable nodes are the specialised cardiac muscle fibres of the nodal tissue

18 **(b)**

Another antigen, the Rh antigen similar to the one present in Rhesus monkey (Hence, Rh), is also observed on the surface of RBCs of majority (nearly 80%) of humans. Such individuals are called Rh positive (Rh^+) and those in whom this antigen is absent are called Rh negative (Rh^-)

19 **(a)**

A-Nodal Tissue, B-SAN, C-AVN. The nodal musculature has the ability to generate action potentials without any external stimuli

20 **(d)**

In open circulatory system instead of capillaries, blood vessels join directly with the open sinuses. Blood is actually a combination of blood and interstitial fluid called haemolymph which is forced from the blood vessels into the large sinuses, where it actually, baths the internal organs.

Open Circulatory System	**Closed Circulatory System**
Blood flows in the open tissue spaces.	Blood flows in the closed tubes.
Blood is in direct contact with the tissue cells.	Blood does not come in direct contact with tissue cells.
Exchange of material directly between the blood and tissue cells.	Exchange of material between tissue cells and blood occurs *via* tissue fluid.
Blood flow is slow.	Blood flow is rapid.
Blood has very low pressure.	Blood pressure is high.

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