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Where Minds Pollinate

Class 12
Biology 

EXERCISE

Solution

chapter 2

Follow Our Socials



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Chapter # 2: Blood Circulatory system of man

Exercise Short Questions

(i)

Why do we have a circulatory system?

We are multicellular organisms. Each cell does not in contact with environment. So, a transport system is required for transportation of different materials in body. So, circulatory system is necessary.

(ii)

What are contraction and relaxation of human heart called?

The contraction of heart chambers is called systole. During systole, the heart pump blood toward body and lungs.

The relaxation of heart chambers is called diastole. During diastole, the blood is filled in heart chambers.

(iii)

Where is SA node, AV node, Purkinji fibre, Bundle of His located?

→ SA node: In the wall of RA (right (Sinoatrial) atrium) wall.

→ AV node: in the lower part of right (Atrioventricular) interatrial septum.

Date: _____

→ Bundle of His:

from AV node through
interventricular septum.

→ Purkinji fibres:

spread into ventricular myocardium

(v)

Why action potential travel along
the purkinji fibres more rapidly than
through other muscle fibres?

Purkinji fibres are specialized - large
diameter cells. There are ~~not~~ numerous
gap junctions that allow quick flow
ions b/w cells. So, action potential
travel along the purkinji fibres rapidly.

(vi)

Name the artery supply blood to
the heart.

The heart receives oxygenated
blood to heart through coronary
arteries.

(vi)

What is blood pressure?

Blood pressure is the force exerted
by circulating blood on the walls of
arteries.

It is expressed as systolic pressure
over diastolic pressure - (eg: 120/80 mmHg)

Date: _____

(vii)

Why SA node is called pacemaker of the heart?

The SA node generates electrical impulses automatically at regular intervals, setting the rate and rhythm of heartbeat. B/c it initiates each heartbeat, it is called natural pacemaker.

(viii)

What is a cardiac cycle?

A heartbeat is one complete heartbeat (cardiac cycle) consisting of atrial and ventricular systole and diastole.

(ix)

What is an arterial pulse? What is the normal human pulse rate?

An arterial pulse is the rhythm expansion of an artery caused by the ejection of blood from left ventricle during systole. The normal resting pulse rate in adults is 60-100 beats per minutes.

(x)

Why is AV node essential for the conduction of cardiac impulse?

The AV node delays the electrical impulse from the atria before sending it to the ventricles. This delay allows complete atrial contraction and filling of ventricles before they contract.

Date: _____

(xi)

What are the risks associated with atherosclerosis?

Atherosclerosis causes narrowing and hardening of arteries due to plaque buildup. It increases the risk of heart attack, stroke, coronary artery diseases etc.

(xii)

Why can you feel your pulse in arteries but not in veins?

Pulse is felt in arteries b/c they carry blood under high pressure from the heart. Veins carry low blood pressure, so no pulse is felt.

(xiii)

Define thrombus and differentiate b/w thrombus and embolus.

Thrombus → A thrombus is a stationary blood clot formed inside blood vessel.

Thrombus

Blood clot remains stationary inside blood vessels called thrombus

Embolus

Detached clot or particle travels through the bloodstream called embolus

(xiv)

Identify the factors causing atherosclerosis and arteriosclerosis.

Both are caused by high cholesterol, smoking, hypertension, diabetes, obesity and lack of exercise.

(xv)

List of advantages and disadvantages of coronary bypass.

Advantages $\Rightarrow$ Restore normal blood flow to the heart

$\Rightarrow$ Relieve chest pain

$\Rightarrow$ Improves quality of life

Disadvantages $\Rightarrow$ Major surgery risks

$\Rightarrow$ Long recovery time

(xvi)

List lifestyle changes that protect from hypertension and cardiac problems.

$\Rightarrow$ Eat a balanced, low fat diet.

$\Rightarrow$ Low salt diet

$\Rightarrow$ Exercise regularly.

$\Rightarrow$ Avoid smoking and alcohols

$\Rightarrow$ Manage stress

$\Rightarrow$ Maintain healthy fat.

(xvii)

Why is The blood circulatory system dependent on The lymphatic system?

The lymphatic system returns leaked plasma and proteins to blood stream, maintaining blood volume and preventing tissue swelling.

(xix)

Why is swelling of The lymph node a cause of concerns?

Swollen lymph nodes indicates that the body is fighting an infection or inflammation. Persistent swelling may also signal serious conditions

Date: _____

(XX)

Write the difference b/w the following:

(a)

Bicuspid valve	Tricuspid valve
⇒ Present b/w left atrium and left ventricle.	⇒ Present b/w right atrium and right ventricle
⇒ Two cusps	⇒ Three cusps

(b)

Systole	Diastole
⇒ Contraction of heart chambers	⇒ Relaxation of heart chambers.
⇒ Pump blood out of the heart	⇒ Allow chambers to fill with blood.

(c)

SA Node	AV Node
⇒ Sinoatrial node	⇒ Atrioventricular node
⇒ Initiate heartbeat	⇒ Delay and transmits impulse to ventricles
⇒ Present at atrium wall	⇒ present at lower part of interatrial septum.

(d)

P-wave	T-wave
⇒ It is atrial depolarization	⇒ It is ventricular depolarization.
⇒ It is 1st small wave.	⇒ It is last wave in ECG cycle

Date: _____

(e)

Blood capillaries

- ⇒ Exchange of gases and nutrients.
- ⇒ It connects arterioles and venules.

Lymph capillaries

- ⇒ Collect tissue fluids (lymph)
- ⇒ It is blind ended tubes in tissues.

(f)

Baroreceptors

- ⇒ It detects changes in blood pressure
- ⇒ It is present in carotid arteries and aortic arch.

Volume receptors

- ⇒ It detects change in blood volume.
- ⇒ It is present in walls of arteries, atria and large veins.