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SUBJECT=PHYSIOLOGY

Q1. Establish a differentiation criteria between arteries, veins and capillaries.

ARTERIES:-

1- DEFINITION:-

The arteries carries oxygenated blood away from the heart.

2- COLOUR:-

Arteries are red in colour as they carry oxygenated blood.

3- LOCATION:-

Arteries located deep with in the body.

4- WALLS AND BLOOD PRESSURE:-

Arteries have thicker walls and higher blood pressure.

5- VALVES AND LUMEN:-

Arteries have no valves , but have much narrower lumen.

6- ELASTICITY:-

Arteries are more elastic.

7- FLEXIBILITY:-

Arteries are highly flexible.

8- LEVEL OF CO₂:-

CO₂ level is low in arterial blood.

9- LEVEL OF OXYGEN:-

Oxygen level are quite high in arterial blood.

10- TYPES:-

Pulmonary arteries , Systemic arteries.

11-ASSOCIATED DISEASES:-

Atherosclerosis, Angina pectoris,

***Atherogenesis
myocardial ischemia.***

VEINS:-

1-DEFINITION:-

***Veins are
blood vessels
that bring blood
back to the heart
and drain blood
from organs and***

limbs. Veins carry deoxygenated blood towards the heart.

2- COLOUR:-

As they carry deoxygenated blood so they are blue in colour.

3- LOCATION:-

Veins are present close to the skin, in the body.

5-VALVES AND LUMEN:-

Veins contain valves to help keep blood flowing in the

***right direction
and have
comparatively
wide lumen.***

6- ELASTICITY:-

7- FLEXIBILITY:-

***Veins are
not very flexible.***

***8- LEVEL OF
CO₂:-***

***CO₂ level is high
in venous blood.***

***9- LEVEL OF
OXYGEN:-***

***Level of
oxygen is low
comparatively.***

10- TYPES:-

***Deep veins,
Superficial veins,***

***Pulmonary veins,
Systemic veins.***

11- DISEASES:-

***Deep
vein thrombosis ,
varicose veins.***

CAPILLARIES:-

1-DEFINITION:-

***Capillaries
are very tiny***

**blood vessels—
that a single red
blood cell can
barely fit
through them.**

2- COLOUR:-

Capillaries

are red in colour

3- LOCATION:-

**Capillaries
are most
abundant in
tissues and
organs that are
metabolically
active.**

**4- WALLS AND
BLOOD
PRESSURE:-**

Wall of capillaries are too thick and the blood pressure is related to the blood velocity in the arteries and arterioles. In the capillaries and veins, the blood

**pressure
continues to
decrease but
velocity
increases.**

**5- VALVES AND
LUMEN:-**

**Capillaries have
no valves but
have the**

**smallest
lumen. The
lumen of the
capillaries is
very narrow.**

6- ELASTICITY:-

**A capillaries
are a blood
vessels it does
not have the**

**muscular elastic
tissues of the
other blood
vessels.**

7- FLEXIBILITY:-

**Blood
vessels are
flexible tubes
that carry blood**

**so the capillaries
are also flexible**

**8- LEVEL OF
CO₂:-**

**CO₂ moves
from the cell into
capillaries. The
partial pressure
of CO₂ is high in
the pulmonary**

**capillaries and low
in the alveoli.**

9-TYPES:-

**There are three
types of capillaries
continuous ,
fenestrated and
sinusoidal.**

10- DISEASES:-

**Systemic
capillary leak**

**syndrome
(SCLS)**

**Q2: Name classes
of antibodies. What
are the
characteristics of
antibodies.**

ANTIBODIES:-

DEFINITION:-

Antibodies are

also known as immunoglobulins, each antibody consist of four polypeptides — two heavy chains and two light chains joined to form a Y shaped molecule. These proteins are produced by the

immune system to help stop intruders from harming the body.

CLASSES OF ANTIBODIES:-

There are five immunoglobulin classes:

- 1- IgG
- 2- IgM

3- IgA

4- IgD

5- IgE

CHARACTERISTIC OF ANTIBODIES:-

Antibodies have two fundamental characteristics;

— **SPECIFICITY:-**

The ability to bind epitopes. One B cell

will make only one specificity of antibodies. That is, they will bind to one epitope. The clone of B-cell that derive from one original B-cell will all make the same specificity.

—BIOLOGIC

ACTIVITY:-

It is the ability to trigger protective physiological activities usually after binding to antigen. This would include:

- Opsonization.
- Activation of complement.
- Clearance of antigen.
- Allergic responses.

- Neutralize toxins.
- Neutralize viruses and other activities.

Q3:- Explain the significance of lymphatic duct.
LYMPHATIC SYSTEM:-

The lymphatic system is a

network of vessels
found in
vertebrates that
carry a milky fluid
called lymph. It also
includes the
lymphoid tissue
through which
lymph travels. This
system transports
and returns

materials from the tissues of the body to blood. Lymph vessels, at certain points, have masses of connective tissues called lymph nodes.

LYMPHATIC

DUCT:-

A lymph duct is a great lymphatic vessel that empties lymph into one of the subclavian veins. There are two lymphatic ducts in the body

- the right lymphatic duct

- thoracic duct.

SIGNIFICANCE
OF LYMPHATIC
DUCT:-

A lymph duct is a great lymphatic vessel that empties lymph into one of the subclavian veins. Right lymphatic duct

empties at junction of right internal jugular and right subclavian veins. while the thoracic duct empties into junction of left internal jugular and left subclavian veins. The primary

function of lymphatic system is to transport the lymph through out the body.

Q4- What are the clinical manifestation of a patient having kidney

disease. Also write
functions of
kidney.

Kidney disease is a progressively debilitating condition that leads to end stage renal disease (ESRD), in which the kidneys cease to support

daily bodily function
— requiring either
dialysis or kidney
transplant. The
progression of
kidney failure may
take as long as 10
to 20 years.

Diabetes and high
blood pressure are
the most common

cause of
ESRD. Kidney
disease often does
not exhibit any
symptoms until it is
in the advanced
stage. Oral health
professional can
help detect early
warning signs by
evaluating patients

for high blood pressure and diabetes and determining whether patient have a history of heart or kidney disease. If these signs are present, the patient should be referred to a

physician, as early treatment can reduced the likelihood of ESRD developing. Renal failure is associated with a decreased glomerular filtration rate, which calculates how

much blood moves through the glomeruli each minute. Healthy adults have a glomerular filtration rate is about 140; normal is greater than 90. Children and older have lower glomerular

filtration rate. When the kidney fails the body fills with extra water and waste product i.e uraemia. Individual with ESRD will often feel ill and fatigued. Common symptoms includes nausea, itching, dry

skin, loss of
appetite and
numbness of
hands. Patient may
experience
excessive thirst
and breath
malodor. These are
caused by the
presence of
nitrogen and other

toxins in the blood. The two main type of dialysis. In peritoneal dialysis, a fluid called dialysate is delivered daily into abdominal cavity via a catheter to capture waste products from the

blood. This allow
toxic solutes to
diffuse from the
peritoneal
capillaries to the
dialysate. After a
few hours, the
dialysate
containing the
blood is sent
through a machine

that filter waste products. The purified blood is returned to the body through an arteriovenous shunt. During treatment patients are given heparin to ease blood exchange and

blood clotting.oral
signs of advanced
renal disease;
pallor in mucosa,
breath that smells
like ammonia,
stomatitis,
accelerated rate of
calculus formation,
possible delayed
healing. Renal

failure may cause a variety of changes in oral cavity. patient's health care teams should be notified of oral manifestations such as oral malodor ,stomatitis

and delayed
healing.

FUNCTIONS OF KIDNEY:-

1- The kidney perform the essential function of removing waste products from the blood and

regulating the
water fluid level.

2- The kidney
receive blood
through the renal
artery. The blood is
passed through the
structure of the
kidney called
nephron, where
waste products and

excess of water
pass out of the
blood stream.

3-The main role of
kidney is
maintaining
homeostasis

4- The kidney
reabsorb nutrients
from the blood and
transport them to

where they would best support health. Reabsorbed product include: glucose, amino acid, bicarbonates, sodium, water and phosphate.

5- The kidney maintain the body

PH.

Q5- What is the difference between systematic circulation and pulmonary circulation. Give signs and symptoms of

myocardial infarction.

ans: The cardiovascular system is composed of two circulatory paths; pulmonary circulation and systematic circulation.

pulmonary **circulation:-**

1- It involve circulation of blood between the heart and lungs.

2- It is the function of the right side of the heart.

3- It carries deoxygenated

blood to the lungs
to receive oxygen.

4- It begins on the
right ventricle and
left on left auricle.

5- It returns
oxygenated blood
back to the heart.

SYSTEMIC

CIRCULATION:-

1- This involves circulation of blood between the heart and body organs.

2-It is the function of left side of the heart.

3- It carries oxygenated blood to the body organs.

4- It starts at left ventricle and ends at the right auricle.

5- It returns deoxygenated blood back to the heart.

MYOCARDIAL

INFRACTION:-

myocardial
infraction also

known as heart
attack occur when
atherosclerotic
plaque slowly
builds up in the
inner lining of a
coronary artery and
then suddenly an
ruptures causing
catastrophic
thrombus

formation, totally occluding the artery and preventing blood flow downstream.

SIGN AND SYMPTOMS:-

The most common symptoms is chest pain or discomfort which may travel

into the shoulder,
arm, neck back and
upper abdomen or
jaw. Other
symptoms includes
shortness of breath
which is the
common and some
time the only
symptom occurring
when damage to

the heart limits the output of the left ventricle. with breathlessness arising either from low oxygen in the blood or pulmonary edema, nausea, feeling faint, a cold sweat or feeling

tired or stomach
pain.