

UNIVERSITY SOLVED QUESTION WITH ANSWER

Year : 2022-2023

Subject : HAP

Subject Code : BP-101T

Subject In-Charge : Kabita Panda & Arun Aniket Das



Registration No :

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Total Number of Pages : 02

Course: B.Pharm
Sub_Code: BP101T

1st Semester Regular/ Back Examination: 2022-23
SUBJECT: HUMAN ANATOMY AND PHYSIOLOGY-I
BRANCH(S): B.PHARM

Time : 3 Hour

Max Marks : 75

Q.Code : L702

Answer Question No.1 (Part-1) which is compulsory, any seven from Part-II and any two from Part-III.

The figures in the right hand margin indicate marks.

- Part-I
- Q1 Answer the following questions : (2 x 10)
- Define homeostasis.
 - Define proximal and distal.
 - Classify different types of bones.
 - What is anemia?
 - What is erythropoiesis?
 - Write the name and functions of third cranial nerve.
 - What is neurotransmitter?
 - Define cardiac output.
 - Write the functions of spleen.
 - What is Electrocardiogram?

- Part-II
- Q2 Focused-Short Answer Type Questions- (Answer Any Seven) (5 x 7)
- Classify tissue; and write location and functions of different muscular tissue.
 - Describe the general principles of cell communication.
 - Classify joints with examples. Discuss about synovial joint.
 - Write the structure and functions of skin.
 - Describe the mechanism of blood coagulation.
 - What is lymph? Describe details about lymph nodes.
 - Write a note on neuro-muscular junction.
 - Write a note on cardiac cycle.
 - Write the difference between sympathetic and parasympathetic nervous system.

Part-III

Long Answer Type Questions (Answer Any Two)

- Q3 With neat and labeled diagram discuss the human cell. Write the structure and functions of plasma membrane. (10)
- Q4 Describe the composition and functions of blood. Write detail notes on blood group and its significance. (10)
- Q5 Describe the various parts of eye with a labeled diagram and explain the mechanism of vision. (10)
- Q6 Describe the followings: (5×2)
- a) Physiology of human heart
 - b) Physiology of muscle contraction

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HUMAN ANATOMY AND PHYSIOLOGY

2022-2023

classmate

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1. a) Define Homeostasis.

Ans:- homeo = same stasis = standing.

- Homeostasis is the term we use to describe the constant state of the internal environment.
- Homeostasis is a state of balance in the body.

b) Define proximal and distal.

Ans:- Proximal:- A proximal structure is located near the body's mid section. This means that it can be found closer to either of your arms or legs.

Distal:- This term often refers to something that is farther away from where a person's hands are located and towards their feet.

c) Classify different types of bones.

Ans:- Bones are classified into:

- flat bones - (skull bones)
- long bones - (femur)
- short bones - (carpal bones)
- Irregular bones - (vertebrae)
- Sesmoid bones - (patella)

d) What is anemia?

Ans:- Anemia is a condition where your blood has

a lower than normal amount of red blood cells or haemoglobin. Here the count of RBCs decreases than normal range:

e) What erythropoiesis?

Ans:- Erythropoiesis is the process which produces red blood cells, which is the development from erythropoietic stem cell to mature red blood cell.

f) Write the name and functions of third cranial nerve?

Ans:- The third cranial nerve - Oculomotor
It's functions → Innervation to the pupil and lens (automatic, parasympathetic).
→ Innervation to upper eyelid (somatic)

g) What is neurotransmitter?

Ans:- Neurotransmitters are endogenous chemicals that allow neurons to communicate with each other through out the body. They are located in a part of the neuron called the axon terminal.

h) Define cardiac Output?

Ans:- Cardiac Output is defined as amount of blood

pumped out of each ventricle per minute.

It expressed in two forms.

→ stroke volume

→ minute volume

Unit - litre (ml) / min

e) Write the function of spleen.

Ans:- • It stores blood.

• Filters blood by removing cellular waste and getting rid of old or damaged blood cells.

• Makes white blood cells and antibodies that help you fight infection.

• Maintains the levels of fluid in your body.

i) What is electrocardiogram?

Ans:- An electrocardiogram (ECG) is a test to record the electrical signals in the heart. It shows how the heart is beating. It displays in a paper through graphs.

2. a) Classify tissue and write location and functions of different muscular tissue.

Ans:- There are 4 types of tissues:-

(1) connective tissue

(2) Epithelial tissue

(3) Muscle tissue

(4) Nervous tissue

Muscular tissue is a specialized tissue in animals which applies forces to different parts of the body by contraction. It is made of thin and elongated cells called muscle fibres.

There are 3 types of muscle tissue -

(1) Cardiac (2) Smooth (3) Skeletal.

(2) Smooth

1. Skeletal Muscle:- Skeletal muscles are voluntary muscles composed of muscle fibres.

These muscles are attached to the skeleton and help in its movement.

2. Smooth Muscle:- These are non-striated involuntary muscles controlled by the autonomic Nervous System.

3. Cardiac Muscle:- These are involuntary muscles and the heart pumps the blood through cardiac contractions.

Location of skeletal muscle is found throughout the body, attached to bones via tendons.

Location of smooth muscle is present in walls of hollow visceral organs except the heart.

Location of Cardiac Muscle makes up the thick middle layer of the heart.

b) Describe the general principals of cell communication
 Ans:- Cellular Systems in the body communicate with

- each other to coordinate and integrate their functions.
- This occurs through a variety of processes known collectively as cell signalling, in which a signalling molecule produced by one cell is detected by another, almost always by means of a specific receptor protein molecule.
- The recipient cell transduces the signal, which it most often detects at the plasma membrane, into intracellular chemical messages that change cell behaviour.

Forms of intracellular Signalling

1. Endocrine Signalling
2. Paracrine Signaling
3. Contact dependent
4. Synaptic Signaling.

1. Endocrine Signaling:- Most endocrine hormones are circulating hormones - they pass from the secretory cells that make them into interstitial fluid and then into the blood.
2. Paracrine Signaling:- Local hormones that act on neighboring cells are called paracrine and that act on the same cell that secreted them are called autocrine.
3. Contact Dependent:- The transfer of signalling

molecules communicate the current state of the cell that is directly next to the target cell, this allows a group of cells to coordinate their response to a signal that only one of them may have received.

4. Synaptic Signaling :- In this form, neurotransmitters are released at synaptic junctions from nerve cells and act across a narrow synaptic cleft on a postsynaptic cell.

c) Classify joints with examples. Discuss about synovial joint.

Ans:- A joint is the location at which two or more bones make contact. They are made for to allow movement and provide mechanical support, and are classified structurally and functionally.

Joints are classified into

- fibrous / Immovable
- Cartilagenous.
- Synovial.

• Fibrous joints :- It is joint betⁿ the root of a tooth and the sockets in the maxilla or mandible.

• Cartilagenous joints :- These allow more movement betⁿ bones than a fibrous joint but less than the highly mobile synovial joint.

The joint between the manubrium and the sternum.

Synovial joint:- These are the most movable joint out of the three joints.

These further classified into.

- 1) Ball and socket joints:- Such as the shoulder or the hip and femur.
- 2) Hinge:- Such as the elbow.
- 3) Pivot:- Such as the radius and ulna.
- 4) Ellipsoid:- Such as the wrist betⁿ radius and carpals or knee.
- 5) Saddle:- Such as the joint betⁿ carpal thumb and metacarpals.
- 6) Gliding:- Such as between the carpals.