M 1/166

Enrolment Number										

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Monsoon, 2024

B. Pharm 1st Semester Examination

Human Anatomy and Physiology I- Theory

Course Code: BP101T

Full Marks – 75 **Time – 3 hours**

The figure in the margin indicates full marks for the questions.

1. Multiple choice questions (MCQ) (Answer all questions): (20 X 1 = 20)

i. Which of the following is NOT one of the basic life processes??

a) Metabolism

b) Growth

c) Respiration

d) Paracrine signaling

ii. Which body system is responsible for transporting oxygen and nutrients?

a) Nervous system

b) Cardiovascular system

c) Digestive system

d) Endocrine system

iii. The structure responsible for cell division is:

a) Mitochondria

b) Ribosome

c) Centrioles

d) Nucleus

iv. The tissue responsible for transmitting electrical signals is:

a) Epithelial tissue

b) Connective tissue

c) Muscular tissue

d) Nervous tissue

v. _____ is the layer of the skin which contains melanocytes.

a) Epidermis

b) Dermis

c) Hypodermis

d) Subcutaneous tissue

vi. What type of joint allows for the most movement?

a) Fibrous joint

b) Cartilaginous joint

c) Synovial joint

d) Fixed joint

vii. _____ is the primary function of hemoglobin.

a) Coagulation

b) Oxygen transport

c) Immune response

d) Blood clotting

viii. Which blood group is known as the universal donor?

a) AB+

b) O+

c) O-

d) AB-

ix. Which system activates the "fight or flight" response?

a) Central nervous system

b) Parasympathetic nervous system

c) Sympathetic nervous system

d) Somatic nervous system

x. The cranial nerve responsible for vision is:

a) Optic nerve (II)

b) Olfactory nerve (I)

c) Trigeminal nerve (V)

d) Facial nerve (VII)

xi. What structure initiates the heartbeat?

a) Atrioventricular node

b) Sinoatrial node

c) Bundle of His

d) Purkinje fibers

xii. What is homeostasis?

a) The ability to grow and reproduce

b) The regulation of internal conditions to maintain a stable environment

c) The process of cell division and differentiation

d) The breakdown of molecules for energy

xiii. The organelle responsible for protein synthesis is:

a) Lysosome

b) Mitochondria

c) Ribosome

d) Golgi apparatus

xiv. Which connective tissue acts as a shock absorber in joints?

a) Adipose tissue

b) Cartilage

c) Dense connective tissue

d) Bone tissue

xv. _____is the primary function of keratin in the skin

a) Sensory reception

b) Pigmentation

c) Protection and waterproofing

d) Temperature regulation

xvi. Which bone is classified as a long bone?

a) Vertebra

b) Femur

c) Sternum

d) Scapula

xvii. _____is the primary function of platelets.

a) Oxygen transport

b) Immune defense

c) Blood clotting

d) Regulation of blood pressure

xviii. The organ of hearing is located in the:

a) Outer ear

b) Middle ear

c) Inner ear

d) Cochlea

xix. Which blood vessel carries oxygenated blood from the lungs to the heart?

a) Pulmonary artery

b) Pulmonary vein

c) Aorta

d) Vena cava

xx. What type of muscle tissue is involuntary and non-striated?

a) Skeletal muscle

b) Smooth muscle

c) Cardiac muscle

d) Myofibrils

2. Short answers (Answer any seven) *(word limit: 250 words)* (7 X 5 = 35)

1. Define anatomy and physiology. Briefly explain their scope.

2. Describe the structure and function of the cell membrane.

3. Explain the process of active and passive transport across the cell membrane.
4. Compare the structure and functions of skeletal, cardiac, and smooth muscles.
5. Explain the structure of the skin and its role in protecting the body.
6. Mention the different types of movements allowed by synovial joints.
7. Explain the components of blood. Describe their functions.
8. Define lymph nodes. Explain their structure and function.
9. Explain the differences between the sympathetic and parasympathetic nervous systems.

3. Long answers (Answer any two): *(word limit: 1000 words)* (2 X 10 = 20)

1. (a) Describe the anatomy of the human heart and the pathway of blood circulation. (5)

   (b) Enumerate cardiac cycle. Explain its phases. (5)

2. Describe the structure and functions of nervous and cardiac tissue in the body. (5+5)

3. (a) Describe the types of bones and their functions in the skeletal system. (5)

   (b) Explain the mechanism of blood clotting. (5)