Exam Date & Time: 20-Dec-2022 (10:00 AM - 01:00 PM)

# MANIPAL ACADEMY OF HIGHER EDUCATION

**Human Anatomy and Physiology-I [PHA-BP101T]**

**Marks: 75** **Duration: 180 mins.**

**I Multiple Choice Questions (MCQs)**

**Answer all the questions.** Section Duration: 30 mins

1) The sternum is _____ to the heart (1)

| 1) Superior | 2) Anterior | 3) Superficial | 4) Proximal |
|---|---|---|---|

2) One among the following is not transported by exocytosis (1)

| 1) Insulin | 2) Acetylcholine | 3) Glucose | 4) Pancreatic lipase |
|---|---|---|---|

3) This tissue forms stroma of organs and filters worn out blood cells (1)

| 1) Arcolar connective tissue | 2) Reticular connective tissue | 3) Dense regular connective tissue | 4) Dense irregular connective tissue |
|---|---|---|---|

4) One of the following factors do not influence the diffusion rate of substances across plasma membranes (1)

| 1) Mass | 2) Steepness of the concentration gradient | 3) Surface area | 4) Surface tension |
|---|---|---|---|

5) This technique is employed to find the pulse and measure the heart rate (1)

| 1) Auscultation | 2) Palpation | 3) Percussion | 4) Inspection |
|---|---|---|---|

6) Cell organelle that fails to degrade abnormal proteins resulting in Parkinsons' and/or Alzheimers' disease (1)

| 1) Proteasome | 2) Lysosome | 3) Peroxisome | 4) Ribosome |
|---|---|---|---|

7) Papanicolaou test examines this particular cervical tissue (1)

| 1) Keratinized stratified squamous epithelium | 2) Nonkeratinized stratified squamous epithelium | 3) Pseudostratified squamous epithelium | 4) Stratified squamous epithelium |
|---|---|---|---|

8) Individuals who are dehydrated can be treated with (1)

| 1) Hypotonic solution | 2) Hypertonic solution | 3) Isotonic solution | 4) None of the above |
|---|---|---|---|

9) Clear images of bones can be visualized by (1)

| 1) Magnetic resonance imaging | 2) Sonography | 3) Computed tomography | 4) Radiography |
|---|---|---|---|

10) Inflammation of this gland causes acne

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Sudoriferous gland | 2) | Sebaceous gland | 3) | Ceruminous gland | 4) | Eccrine glands | (1) |

11) Repair of a damaged long bone is limited because

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Articular cartilage lacks a periosteum | 2) | Articular cartilage lacks a perichondrium | 3) | Articular cartilage lacks an endosteum | 4) | Articular cartilage lacks an epiphysium | (1) |

12) This type of special movement occurs when you stand on your heels

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Plantar flexion | 2) | Dorsiflexion | 3) | Inversion | 4) | Eversion | (1) |

13) Majority of the elasticity and extensibility of myofibrils is due to

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Dystrophin | 2) | Myomesin | 3) | Titin | 4) | Troponin | (1) |

14) Thick skin of fingertips has this epidermal layer

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Stratum granulosum | 2) | Stratum spinosum | 3) | Stratum corneum | 4) | Stratum lucidum | (1) |

15) Which of the following is not a function of lymphatic system?

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Transporting lipid soluble vitamins | 2) | Carrying out immunological responses | 3) | Draining tissue spaces of excess interstitial fluid | 4) | Transporting water soluble vitamins | (1) |

16) Mature thrombocytes arise from

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Megakaryoblasts | 2) | Myeloblasts | 3) | Monoblasts | 4) | Proerythroblasts | (1) |

17) One among the following substances do not contribute to inflammation

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Heparin | 2) | Histamine | 3) | Kinins | 4) | Prostaglandins | (1) |

18) In the intrinsic pathway of blood clotting, factor XII activates

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Factor X | 2) | Factor XI | 3) | Factor IX | 4) | Factor XIII | (1) |

19) This is the peritoneal fold that drapes over transverse colon and coils of the small intestine

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Greater omentum | 2) | Falciform ligament | 3) | Mesocolon | 4) | Mesentery | (1) |

20) This is an enzyme that acts in the small intestine for carbohydrate digestion

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | Salivary amylase | 2) | Pancreatic amylase | 3) | Salivary lipase | 4) | Carboxypeptidase | (1) |

## II Long Answers

**Answer all the questions.**

1) With a neat-labelled diagram, explain the external and internal anatomy of stomach. Describe the physiology of secretion of hydrochloric acid in the stomach (10)

2) Define cardiac output. How is stroke volume regulated? Summarize the various (10)

factors that increase cardiac output

## III Short Answers

**Answer all the questions.**

| | | |
|---|---|---|
| 1) | Describe the various components of blood in adult humans giving normal ranges. What is the difference between plasma and serum? | (5) |
| 2) | Compare and contrast cell-mediated and antibody-mediated immune responses | (5) |
| 3) | Normally, 2-3 days are adequate to heal an abrasion compared to a deep wound which takes slightly more than a week for healing. Explain the underlying physiological mechanism for healing process | (5) |
| 4) | Classify various types of joints with relevant examples | (5) |
| 5) | Explain the different types of blood capillaries found in certain parts of the body. What is a thoroughfare channel? | (5) |
| 6) | Describe the role of creatinine phosphate in skeletal muscles | (5) |
| 7) | Explain the principle and applications for any five medical imaging techniques | (5) |

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