28.11.25

Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD (now MoE)
Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore - 641043, Tamil Nadu, India

Bachelor's Degree Examination - November 2025
III Semester

Class : II UG | **Time : 3 Hours**
Major : Biochemistry and Biotechnology | **Max. Marks : 100**

23BBTC03 Mammalian Physiology

Course Outcomes:

CO1: The various physiological systems in human body
CO2: The functional anatomy of different organs in each system
CO3: The complex mechanisms of the processes of digestion, absorption, excretion, gas exchange, reproduction and neuromuscular coordination
CO4: Integrated system physiology that will enable understanding of the biochemical basis of disease
CO5: Qualitative and quantitative analysis of Biochemical parameters

Part A — 10 x 1 = 10
Choose the Correct Answer

1. The functional unit of the kidney is — CO1K1
   a. Glomerulus b. Nephron
   c. Tubule d. Bowman's capsule

2. Which enzyme is secreted by the salivary glands? — CO1K1
   a. Pepsin b. Amylase
   c. Lipase d. Trypsin

3. The universal blood donor group is — CO2K1
   a. A b. B
   c. O d. AB

4. Which chamber of the heart pumps blood to the lungs? — CO2K1
   a. Left atrium b. Right atrium
   c. Right ventricle d. Left ventricle

5. The respiratory pigment in human blood is — CO3K1
   a. Hemoglobin b. Myoglobin
   c. Hemocyanin d. Chlorocruorin

6. The sensory organ for balance and hearing is — CO3K1
   a. Retina b. Cochlea
   c. Olfactory bulb d. Taste buds

7. The contractile protein present in muscle is — CO4K1
   a. Collagen b. Actin
   c. Elastin d. Keratin

8. The fluid that protects the brain and spinal cord is — CO4K1
   a. Plasma b. Lymph
   c. Cerebrospinal fluid d. Synovial fluid

9. The hormone responsible for milk secretion is — CO5K1
   a. Prolactin b. Oxytocin
   c. Estrogen d. Progesterone

10. Which gland is called the "master gland"? — CO5K1
   a. Thyroid b. Pituitary

Part B — 5 x 6 = 30

Answer ALL questions

Each answer should not exceed 400 words or two pages

11.a. Explain glomerular filtration and describe its significance in urine formation.	CO1K2
(or)	
11.b. Explain the functional anatomy of digestive tract.	CO1K2
12.a. Describe the composition and functions of blood.	CO2K2
(or)	
12.b. Relate the structure and functions of the heart with a labeled diagram.	CO2K2
13.a. Distinguish between the mechanics of inspiration and expiration.	CO3K2
(or)	
13.b. Outline the physiology of smell, touch senses.	CO3K2
14.a. Write short notes on the regulatory proteins of muscle contraction.	CO4K3
(or)	
14.b. Illustrate with neat diagram the structure and functions of brain.	CO4K3
15.a. Interpret the physiological changes and hormonal regulation of menstrual cycle.	CO5K3
(or)	
15.b. Write the functions of thyroid hormones.	CO5K3

Part C — 5 x 12 = 60

Answer ALL questions

Each answer should not exceed 800 words or four pages

16.a. Sketch the digestion and absorption of carbohydrates, proteins, and lipids.	CO1K3
(or)	
16.b. Outline the role of kidney in maintaining acid-base balance.	CO1K3
17.a. Illustrate with neat diagram the process of blood coagulation.	CO2K3
(or)	
17.b. How do you explain the concept of cardiac cycle to regulate blood pressure.	CO2K3
18.a. Deduce the process of gas exchange across alveoli.	CO3K4
(or)	
18.b. Explain the anatomy, physiology, mechanism and abnormalities of vision.	CO3K4
19.a. Illustrate the sliding filament model of muscle contraction and outline on disorders of skeletal muscle.	CO4K4
(or)	
19.b. Explain the structure of neuron and the mechanism of nerve impulse transmission.	CO4K4
20.a. Evaluate the hormonal regulation during pregnancy, parturition and lactation.	CO5K4
(or)	
20.b. Discuss the concept of second messengers (cAMP, DAG, IP3, G-protein) and explain its role in hormone action.	CO5K4

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