

Enrollment No.....



Faculty of Science
End Sem Examination May-2024
BT3CO06 Mammalian Physiology

Programme: B.Sc.

Branch/Specialisation: Biotechnology

Duration: 3 Hrs.**Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d. Assume suitable data if necessary. Notations and symbols have their usual meaning.

- Q.1 i. Bile juice is formed in- **1**
(a) Liver (b) Kidney (c) Lung (d) Salivary Gland
- ii. Which of the following functions by filtering and keeping the **1**
mucus and dirt away from our lungs?
(a) Cilia (b) Bronchioles
(c) Hairs in the lungs (d) All of these
- iii. Which of the following is a condition where a blood clot forms in **1**
the circulatory system?
(a) Thrombus (b) Strombus (c) Hematoma (d) None of these
- iv. Which vessel carries deoxygenated blood to the lungs from the **1**
right ventricle?
(a) Pulmonary artery (b) Pulmonary vein
(c) Aorta (d) None of these
- v. Which is most likely to extend the entire length of a muscle fibre? **1**
(a) Sarcomere (b) Myofibril
(c) Myosin filament (d) M-line
- vi. The sarcoplasmic reticulum does NOT: **1**
(a) Surround each myofibril
(b) Release Ca^{2+} in response to a muscle action potential
(c) Has a Ca^{2+} "pump" in its membrane
(d) Make up about 85% of the contents of a muscle fibre
- vii. Which of the following structure at a synapse has the **1**
neurotransmitter?
(a) Schwan cells (b) Axonal terminal
(c) Synaptic cleft (d) Synaptic vesicles

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- viii. Pituitary hormone triggering the male testes to generate sperm and in females, triggering follicular development on a monthly basis is- **1**
 (a) Prolactin
 (b) Growth hormone
 (c) Follicle-stimulating hormone
 (d) Luteinizing hormone
- ix. Body Circadian rhythm is primarily regulated by- **1**
 (a) Pineal gland (b) Thymus
 (c) Thyroid (d) None of these
- x. Below are four evaluative statements about general adaptation syndrome (GAS). Which statement is TRUE? **1**
 (a) It correctly explains how everyone responds in different ways to different sources of stress.
 (b) It fails to explain what happens when a person is repeatedly exposed to stress.
 (c) It is better at explaining female responses to stress than male responses to stress.
 (d) It wrongly assumes that the body responds in the same way to different sources of stress.

- Q.2 i. State the main functions of digestive system. **2**
 ii. Draw a well labelled diagram of respiratory organ. **3**
 iii. Explain in detail about digestion and absorption of carbohydrates. **5**
 OR iv. What is chloride shift? Give its significance. **5**

- Q.3 i. Name the components of blood. **2**
 ii. Explain the mechanism of coagulation of blood. **8**
 OR iii. Illustrate cardiac cycle with necessary diagram. **8**

- Q.4 i. Compare the different types of muscles. **3**
 ii. Explain all and none rule with the help of an example. **7**
 OR iii. Discuss the mechanism of muscle contraction of any muscle type. **7**

- Q.5 i. Illustrate the structure of synapse? **2**
 ii. What is endocrine system? Explain any one endocrine gland in detail. **3**
 iii. Briefly explain the mechanism of generation and propagation of nerve impulse. **5**

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- OR iv. Defend the statement that hypothalamus is the master regulator of the body. **5**
- Q.6 Attempt any two:
- i. Explain sleep physiology in detail, including a brief explanation of circadian rhythms and the role of the pineal gland in regulating them. **5**
- ii. Explain the types of stress and the role of cortisol in dealing with it. **5**
- iii. Define hyperbaric and hypobaric environment. Also, state the effects and preventive measures of hyperbaric and hypobaric environment. **5**

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