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(NEP—2020)

(4th Semester)

ZOOLOGY (MAJOR/MINOR)

(Physiology)

Full Marks : 75

Time : 3 hours

The figures in the margin indicate full marks for the questions

(SECTION : A—OBJECTIVE)

(Marks : 10)

Tick (✓) the correct answer in the brackets provided :

1×10=10

1. The secretion of HCl and pepsinogen from the gastric glands in the stomach is stimulated by

- (a) enterokinase ()
- (b) rennin ()
- (c) digestin ()
- (d) gastrin ()

2. In which part of the respiratory system, gaseous exchange takes place?

- (a) Alveoli ()
- (b) Pharynx ()
- (c) Larynx ()
- (d) Trachea ()

3. The opening between right atrium and right ventricle is guarded by the valve named
- (a) mitral valve ()
 - (b) tricuspid valve ()
 - (c) bicuspid valve ()
 - (d) semilunar valve ()
4. The most toxic form of nitrogenous waste which needs a huge amount of water for its removal from the body is
- (a) guanine ()
 - (b) ammonia ()
 - (c) urea ()
 - (d) uric acid ()
5. In human being, the duration of cardiac cycle is
- (a) 0.008 sec ()
 - (b) 0.5 sec ()
 - (c) 0.8 sec ()
 - (d) 8 sec ()
6. When a muscle fibre shortens, which of the following also shortens?
- (a) Sarcomere ()
 - (b) Actin filament ()
 - (c) Myosin filament ()
 - (d) Z-line ()
7. In the sliding filament model of muscle contraction, the myofilaments slide over each other, resulting in the overlapping of
- (a) myosin and actin ()
 - (b) troponin and tropomyosin ()
 - (c) tropomyosin and Z-line ()
 - (d) troponin and Z-line ()

8. Each muscle fibre is surrounded by a thin layer of connective tissue known as
- (a) perimysium ()
 - (b) endomysium ()
 - (c) epimysium ()
 - (d) sarcoplasm ()
9. A small gap between two neurons, where nerve impulses are relayed by a neurotransmitter is known as
- (a) synapse ()
 - (b) axon ()
 - (c) dendrites ()
 - (d) telodendria ()
10. Which part of a neuron receives signals from other neurons and transfer the information to the soma of the neuron?
- (a) Telodendria ()
 - (b) Axon ()
 - (c) Dendrites ()
 - (d) Myelin sheath ()

(SECTION : B—SHORT ANSWERS)

(Marks : 15)

Write short notes on *five* of the following, taking at least *one* from each Unit :

3×5=15

UNIT—I

- 1. Difference between extracellular and intracellular digestions
- 2. Gill respiration

UNIT—II

- 3. Pacemaker
- 4. Ammonotelic animals

UNIT—III

5. Osmoregulation in terrestrial vertebrates
6. Muscle proteins

UNIT—IV

7. Types of neurons
8. Synapse

(SECTION : C—DESCRIPTIVE)

(Marks : 50)

Answer *five* questions, taking at least *one* from each Unit :

10×5=50

UNIT—I

1. Describe the process of digestion of carbohydrates with suitable schematic representation.
2. What is respiration? Discuss the different types of respiration.

UNIT—II

3. Give an account on open and closed types of circulatory system.
4. Illustrate the structure and functions of mammalian kidney.

UNIT—III

5. Define osmoregulation. Write the mechanism of osmoregulation in marine vertebrates.
6. Discuss in detail the mechanism of muscle contraction by sliding filament theory and cross-bridge model in a skeletal muscle.

UNIT—IV

7. Write an account on the major neurotransmitters.
8. Describe the mechanism of propagation of nerve impulse in a neuron.
