

Roll No.

E-1012(A)**M. Sc. (Fourth Semester) (Main/ATKT)****EXAMINATION, May-June, 2021**

ZOOLOGY

Paper Second

(Neurophysiology and General Physiology)*Time : Three Hours]**[Maximum Marks : 80***Note :** Attempt all Sections as directed.**Section—A**

1 each

(Objective/Multiple Choice Questions)**Note :** Attempt all questions.

Choose the correct answer :

1. Which of the following is one of the parts of the hindbrain ?

- (a) Hypothalamus
- (b) Cerebellum
- (c) Corpus callosum
- (d) Spinal cord

2. Afferent neurons carry nerve impulses from :

- (a) CNS to muscles
- (b) CNS to receptors
- (c) Receptors to CNS
- (d) Effector organs to CNS

3. Which of the following is another name for the third ventricle of the brain ?

- (a) Piocoel
- (b) Paracoel
- (c) Rhinocoel
- (d) Metacoel

4. Nissl's granules present in the neurons are made up of :

- (a) Protein
- (b) Ribosome
- (c) RNA
- (d) DNA

5. The central nervous system consists of the :

- (a) Brain stem and the cerebellum
- (b) Spinal cord
- (c) Brain
- (d) Brain and spinal cord

P. T. O.

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6. The hypothalamus and thalamus are in the :
- (a) Diencephalon
 - (b) Cerebellum
 - (c) Cerebrum
 - (d) Limbic system
7. Neurotransmitters :
- (a) are produced by muscles
 - (b) are found only in neurons with myelin sheath
 - (c) carry electrical impulses
 - (d) are signal molecules released at synapses
8. Which is the smallest cranial nerve ?
- (a) Olfactory nerve (I)
 - (b) Oculomotor nerve (III)
 - (c) Trochlear nerve (IV)
 - (d) Abducent nerve (VI)
9. The dermatome supplying the great toe is usually :
- (a) L3
 - (b) L4
 - (c) L5
 - (d) S1

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10. After release, most neurotransmitters are deactivated by :
- (a) Reuptake
 - (b) Enzymes
 - (c) Post-synaptic receptors
 - (d) Buffered diffusion
11. The terminal buttons of a neuron are located at the end of its :
- (a) Axon
 - (b) Dendrites
 - (c) Myelin sheath
 - (d) Nodes of Ranvier
12. Impulse conduction is fastest in neurons that are :
- (a) Myelinated
 - (b) Unmyelinated neuron
 - (c) Sensory
 - (d) Motor
13. Which of the following cells secretes gastric acid in the stomach ?
- (a) Parietal cells
 - (b) Chief cells
 - (c) Acidic cells
 - (d) Peptic cells

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14. Which of the following parts of the digestive system contains Brunner's glands ?
- (a) Duodenum
 - (b) Ileum
 - (c) Oesophagus
 - (d) Stomach
15. Chief cells are present in :
- (a) Duodenum
 - (b) Pyloric region of stomach
 - (c) Fundic region of stomach
 - (d) Cardiac region of stomach
16. In which part of the respiratory system, gaseous exchange takes place ?
- (a) Alveoli
 - (b) Pharynx
 - (c) Larynx
 - (d) Trachea
17. In Aves, the exchange of gases occurs within the
- (a) Air sacs
 - (b) Lungs
 - (c) Air sacs and Lungs
 - (d) None of the above

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18. In muscle contraction, this ion is essential :
- (a) Cl
 - (b) Ca
 - (c) K
 - (d) Na
19. In the striated muscles, the functional unit of contractile system is :
- (a) Z-band
 - (b) Cross bridges
 - (c) Sarcomere
 - (d) Myofibril
20. Which of these are not types of blood cell ?
- (a) Leucocytes
 - (b) Erythrocytes
 - (c) Myocytes
 - (d) Thrombocytes

Section—B

2 each

(Very Short Answer Type Questions)

Note : Attempt all questions. Word limit one to two words or sentences.

1. Define diastolic pressure.
2. Name the iron containing protein of erythrocytes.

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3. Define tidal volume.
4. Name the lobes of brain.
5. Which cell provides supports to the neurons ?
6. What is the pH of HCl secreted in stomach ?
7. Write the dental formula of rabbit.
8. Define the bicephalic ribs.

Section—C

3 each

(Short Answer Type Questions)

Note : Attempt all questions. Word limit 75 words.

1. Define the significance of Ca^{++} ions in the contraction of muscles.
2. Explain the role of salivary enzymes.
3. Explain the importance of pneumatic bones in aves.
4. Define Micturition.
5. Define cellular respiration.
6. Define the lymph and its composition.
7. What is the voluntary muscle system ?
8. Explain the role of muscles in stomach.

Section—D

5 each

(Long Answer Type Questions)

Note : Attempt all questions. Word limit 150 words.

1. Explain the histological structure of neurons.

Or

Give a detailed account on cerebrospinal fluid and its function.

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2. Explain the reflex action.

Or

Explain the synaptic transmission of nerve impulses.

3. Explain the structure of heart in mammals.

Or

Give a detailed account on physiology of breathing.

4. Explain the physiology of muscle contraction.

Or

Give a detailed account on ultrafiltration, in excretion of urea.

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