(b) What is synapse? Discuss the different types of synapses. (8)

4. (a) Discuss the molecular pathology associated with Alzheimer's disease. (7)

(b) Describe the process of action potential generation and propagation along an EPSP. (8)

5. (a) What are neurotransmitters. Describe its role in synaptic plasticity. (8)

(b) Give an account of development of neurological disorder Schizophrenia. (7)

6. (a) What is amnesia? Describe the different categories of memory. (6)

(b) Define sleep. Explain the different stages of sleep. (9)

7. Write a short note on any **three** of the following (5×3=15)

(a) EEG

(b) fMRI

(c) Blood brain barrier

(d) Neural basis of visual perception

(e) Post synaptic potentials

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1263 **I**

Unique Paper Code : 2233010011

Name of the Paper : DSE-11 : Basics of Neuroscience

Name of the Course : **B.Sc. (H) Zoology**

Semester : Vth (NEP-UGCF-2022)

Duration : 3 Hours Maximum Marks : 90

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **five** questions in all.
3. Question No. **1** is compulsory.

1. (a) Define the following : (1×5=5)

(i) Neuron Doctrine theory

(ii) Action Potential

(iii) Hypothalamus

(iv) Synaptic cleft

(v) Ventricles

(b) Differentiate between the following : (2×5=10)

(i) Absolute and Relative Refractory Period

(ii) Depolarisation and Hyperpolarisation

(iii) Long term Potentiation and Long Term Depression

(iv) Cerebrum and Cerebellum

(v) CT and PET

(c) Justify the following statement : (2×5=10)

(i) Glial cells contribute to brain function.

(ii) Inhibitory postsynaptic potential (IPSP) prevents the generation of action potential.

(iii) Norepinephrine (noradrenaline) is both a neurotransmitter and hormone.

(iv) Electrical synapses conduct nerve impulses faster than chemical synapses.

(v) Modulatory neurons modify the sensitivity or responsiveness of neurons for generation of action potential.

(d) Fill in the blanks : (1×3=3)

(i) The frontal lobe can be distinguished from the temporal lobe by _____ fissure.

(ii) The pia along with the arachnoid are referred to _____.

(iii) Memory consolidation takes place in the _____.

(e) Give Contribution of following : (1×2=2)

(i) Camillo Golgi

(ii) Charles Sherrington

2. (a) Draw the well-labelled diagram of neuron highlighting the functional characteristics. (5)

(b) Give a detailed account of organization and classification of nervous system. (10)

3. (a) Explain the molecular basis of learning and memory formation. (7)