

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 7200

K

Unique Paper Code : 2493010014

Name of the Paper : Neurobiology (DSE)

Name of the Course : **B.SC. (Hons.) Biochemistry (NEP).**

Semester : VIII

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. There are 6 questions.
2. Attempt any 4 questions. All questions carry equal marks.
3. Question No. 1 is compulsory.

1A. Define:

- a. Saltatory conduction
- b. Glymphatics
- c. Neural plasticity
- d. Nernst's equation
- e. Long term potentiation

B. Give one word for the following:

- a. The primary glial cell responsible for myelination in the PNS.
- b. The area of the brain responsible for postural balance.
- c. The area where the CSF is synthesized.
- d. A functional, organized group of neurons within the CNS that processes, integrates, and forwards specific information.
- e. The large bundle of white matter that connects the 2 hemispheres.

(10, 5)

2. Differentiate between:

- a. Ionotropic and metabotropic receptors
- b. Cerebellar cortex and cerebrum cortex
- c. Action potential and graded potential
- d. NMDA and AMPA receptors
- e. Subarachnoid and subdural spaces

(3x5)

P.T.O.

3A. Comment on the following:

- a. Growth cones respond to molecular cues and direct axonal synapsing.
- b. Most brain tumors are gliomas.
- c. Lumbar/spinal tap of CSF is used for diagnostics / is a diagnostic procedure.
- d. Some neurons do not adhere to the Dale's Principal.
- e. Microglia is the only cell that does not originate from neuroectoderm.

B. Explain why patients suffering from Multiple Sclerosis and Myasthenia Gravis undergo thymus removal and corticosteroids treatment.

(10, 5)

4A. Diagrammatically represent:

- a. Generation of action potential at the neuromuscular junction
- b. Perception of pain
- c. Reflex arc
- d. Perisynaptic regulation of glutamate neurotransmitter metabolism.
- e. Representation of EEG patterns during stages of sleep.

(3x5)

5A. Explain the role of notch and delta signaling in neurogenesis and gliogenesis.

B. Explain the anatomy of the Blood brain barrier. How does it function as a barrier and a carrier?

C. Explain phototransduction and visual perception.

(5x3)

6. Write short notes on:

- a. Alzheimer's disease
- b. Types of sensory receptors
- c. Learning and memory

(5x3)