Total No. of Questions : 4]

SEAT No. : ____

P1432

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[5124]-33
M.Sc.
BIOCHEMISTRY
BCH - 372: Neurochemistry
(2010 Pattern) (Semester - III)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Figures to the right indicate full marks.***
3) ***Draw necessary diagrams wherever necessary.***

Q1) Answer any *four* of the following. **[20]**

a) Describe the organizations of CNS.

b) Write a note on synthesis and trafficking of neutral proteins.

c) What are voltage gated ion channels? Explain their functions with example.

d) Explain the steps involved in the generation of action potential.

e) Write a note on intracellular messengers.

Q2) Attempt any *two* of the following: **[20]**

a) Describe the synthesis, storage, degradation and action of glutamate.

b) What are neurotransmitters? Define the characteristics of neurotransmitters.

c) Explain the steps involved in the synaptic transmission.

Q3) Answer any *two* of the following: **[20]**

a) Contrast the generation and conduction of graded potentials with that of action potentials.

b) What are the types of receptors involved in sensory perception? Explain with example.

c) Describe the structure and function of synapse.

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Q4) Write a short notes on (any four) **[20]**

a) Nerve cells and behavior.

b) Long term potentiation.

c) Biochemistry of touch.

d) Cerebrospinal fluid.

e) Sensory modalities.

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Total No. of Questions : 6]

[5124]-33
M.Sc.
BIOCHEMISTRY
BCH - 372: Signal Transduction Pathways
(2008 Pattern) (Semester - III)

Time : 3 Hours] ***[Max. Marks : 80***

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Answers to both the sections should be written on separate answer sheets.***
3) ***Figures to the right indicate full marks.***

SECTION - I

(Signal Transduction Pathways - I)

Q1) Answer any *two* of the following: **[10]**

a) Describe the role of acetyl choline esterase.

b) Write a note on muscle contraction.

c) Describe in detail the primary events in visual cycle.

Q2) Attempt any *three* of the following: **[15]**

a) Give a short account on the propagation of nerve impulse.

b) What is chemotaxis? Describe the functions of proteins involved in signal transduction pathway.

c) Explain the biochemical mechanism of taste.

d) What is rhodopsin? Describe the structural properties of rhodopsin.

Q3) Write a short notes on (any three): **[15]**

a) Biochemistry of hearing.

b) Nerve poisons.

c) Rods and cones.

d) Metabolism of muscle.

SECTION - II

(Signal Transduction Pathways - II)

Q4) Attempt any *two* of the following: **[10]**

a) Explain the mechanisms proposed for short term and long-term memory storage.

b) Describe the ionic basis for inhibitory and excitatory post-synaptic potentials and how these changes can alter synaptic transmission.

c) Discuss the localization of higher functions of the brain.

Q5) Attempt any *three* of the following: **[15]**

a) Describe ionic basis of an action potential.

b) Write a note on coordination of nervous and endocrine systems.

c) Describe the organization of central nervous system and peripheral nervous system.

d) Explain the steps involved in the transmission of nerve impulse across the synapse.

Q6) Write a short notes on (any three): **[15]**

a) Neuropeptides.

b) Blood brain barrier.

c) Neural plasticity.

d) Calcium signaling.

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