Total No. of Questions : 8]

SEAT No :

P 1951

[Total No. of Pages :2

[5324]-303

M.Sc.

BIOCHEMISTRY

BCH- 372: Neurochemistry and Biochemistry of Specialized Tissues (2013 Pattern) (Credit System) (Semester - III)

Time : 3 Hours] ***[Max. Marks : 50***

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Question no. 4 and 8 are compulsory.***
3) ***Attempt any two questions from Q.1 to Q.3 and any two questions from Q.5 to Q.7.***
4) ***Figures to the right side indicate full marks.***

SECTION - I
(Neurochemistry)

Q1) Answer the following :

a) How is neurotransmitter uptake from the synaptic cleft? **[2]**

b) List the functions of the reticular formation. **[4]**

c) What is calpain ? Explain the role of calpain and other proteins in memory and learning process. **[4]**

Q2) Attempt the following :

a) Describe the mode of action of GABA, serotonin, and dopamine on post synaptic membrane. **[3]**

b) How does hypothalamus communicate and integrate signals. **[3]**

c) Describe the synthesis, storage and degradation of any one neurotransmitter. **[4]**

Q3) Answer the following :

a) Write a note on Circadian rhythms. **[2]**

b) What are neuropeptides? Explain with one example. **[3]**

c) How does the brain identify sensations as touch, pressure, heat, and pain?. **[5]**

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Q4) Attempt any one of the following :

a) Which spinal cord tracts are ascending tracts? Which are descending tracts? **[5]**

b) Describe the function of diverging, converging, reverberating and parallel after-discharge circuits. **[5]**

SECTION - II
(Biochemistry of Specialized Tissues)

Q5) Answer the following :

a) What is resting potential? **[2]**

b) Write a note on biochemical basis of hearing. **[4]**

c) Give the role of *che* gene products in bacterial chemotaxis. **[4]**

Q6) Attempt the following :

a) Briefly describe the structure of neuron with diagram. **[3]**

b) Explain the kinetics of desensitization and recovery of acetylcholine receptor. **[3]**

c) Describe energy use in muscle cells and list the three sources for ATP production in muscle. **[4]**

Q7) Answer the following :

a) What is chemotaxis? **[3]**

b) Write a note on colour vision. **[3]**

c) What are the receptors involved in perception of small? Explain their sensitivity and selectivity in detail. **[5]**

Q8) Attempt any one of the following :

a) Describe the organization and functional parts of the rod cells within the retina. **[5]**

b) Compare the properties of actin in skeletal muscle and in non-muscle cells. what is “actin-based motility? **[5]**

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