

Register Number:

B.TECH DEGREE EXAMINATIONS: NOV/DEC 2014

(Regulation 2009)

Eighth Semester

BIOTECHNOLOGY

BTY213: Neurobiology and Cognitive Sciences

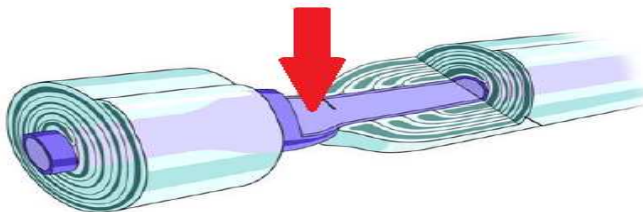
Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

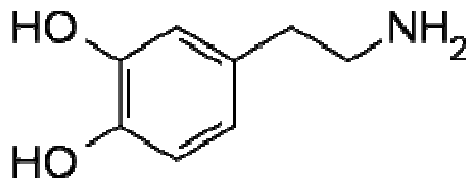
PART A (10 x 1 = 10 Marks)

1. Which **ONE** of the following is abundant in the myelin sheath?
 - a) Phosphatidyl choline
 - b) Oleoyltriester
 - c) Glucose
 - d) Sphingomyelin
2. Identify the following part of a neuron:



- a) Axon
 - b) Dendrite
 - c) Node of Ranvier
 - d) Cell body
3. What is the value of resting potential of a neuron?
 - a) -40
 - b) +40
 - c) -70
 - d) +70
4. ----- is an example for a biogenic amine
 - a) Adrenaline
 - b) Somatostatin
 - c) Insulin
 - d) Ricin
5. Syntaxin is SNARE protein activated by ----- ions
 - a) Sodium
 - b) Calcium
 - c) Potassium
 - d) Iron

6. Identify the following neurotransmitter:



- | | |
|-------------------|---------------|
| a) Acetyl choline | b) Epineprine |
| c) Norepinephrine | d) Dopamine |
7. Visual cycle begins with the stimulation of -----
- | | |
|-------------|-------------|
| a) Retinol | b) Retinal |
| c) Retinene | d) Retinone |
8. Which **ONE** of the following protein belongs to cytoskeletal category?
- | | |
|--------------|-----------------|
| a) Bromolein | b) Secretin |
| c) Titin | d) Pancreozymin |
9. ----- doesn't involve in the process of memory
- | | |
|----------------|-------------|
| a) Hippocampus | b) Striatum |
| c) Amygdala | d) Pinna |
10. Pick the correct mental order
- | | |
|------------------|-----------------|
| a) Schizophrenia | b) Somnambulism |
| c) Cirrhosis | d) Dystrophy |

PART B (10 x 2 = 20 Marks)

11. Draw the structure of a neuron and indicate the parts
12. Outline the significance of cerebrospinal fluid
13. Define the action potential
14. Represent diagrammatically the interaction between the acetyl choline and the receptor
15. How the mobility of a synaptic vesicle is facilitated?
16. Draw the structure of serotonin
17. Give the significance of olfactory receptors
18. What is nociceptive pain?
19. What is agrophobia?
20. List the important hormones secreted during anxiety

PART C (5 x 14 = 70 Marks)

21. a) (i) Outline the classification of peripheral nervous system (4)
(ii) Explain the structure of a neuron with a neat labeled sketch (10)
(OR)
- b) (i) Write in brief the composition and significance of CSF (7)
(ii) Give a detailed account of the functions of the spinal cord (7)
22. a) Describe in brief the mechanism of action neurotransmitters and resting potential with a simple sketch
(OR)
- b) Elaborate in detail the working modality of sodium and potassium pumps in neural transmission
23. a) (i) How hypothalamus hormones control the neuronal transmission process? (7)
(ii) Write a short note on fast and slow neuronal transmission (7)
(OR)
- b) Explain the mechanism of transmission of nerve impulse with a suitable sketch
24. a) Discuss in detail the mechanism of muscle contraction with a suitable example
(OR)
- b) Give a detailed mechanism of neural mechanism involved in vision
25. a) Describe in brief the mechanism of Parkinson's and Alzheimer's diseases
(OR)
- b) Write in detail the involvement of neural transmission in the process of hearing and memory
