| **University of Kerala** | | |
| --- | --- | --- |
| Discipline: ZOOLOGY |  | Time: 2 Hours (120 Mins.) |
| Course Code:UK1DSCZOO104 |  | Total Marks: 56 |
| Course Title: **Human Nervous System and Behaviour** |  |  |
| Type of Course: DSC |  |  |
| Semester: 1 |  |  |
| Academic Level: 100-199 |  |  |
| Total Credit: 4, Theory: 4 Credit, Practical: 0 Credit |  |  |

**Part A. 6 Marks. Time: 5 Minutes.** (Cognitive Level: Remember/Understand)

Objective Type. 1 Mark Each. Answer All Questions

| Qn.  No. | Question | Cognitive  Level | Course  Outcome (CO) |
| --- | --- | --- | --- |
| 1. | What is the main function of Schwann cells?  A) Production of cerebrospinal fluid  B) Forming the myelin sheath in the peripheral nervous system  C) Removing cellular debris in the brain  D) Transmitting nerve impulses | Remember | 1 |
| 2. | In synaptic transmission, what is the term for the time delay between the arrival of an action potential and neurotransmitter release?A) Synaptic fatigueB) Synaptic delayC) Refractory periodD) Latent period | Understand | 2 |
| 3. | Which structure acts as the relay station for sensory information to the cerebral cortex? A) Thalamus B) Cerebellum C) Limbic System D) Pons Varolii | Understand | 1 |
| 4. | Which of the following best describes the "all or none" law in nerve impulse transmission? A) The neuron will only fire if the stimulus exceeds the threshold level.  B) The neuron fires a stronger impulse if the stimulus is stronger.  C) The neuron can fire a weak impulse if the stimulus is weak.  D) The neuron gradually builds up an action potential over time | Understand | 2 |
| 5. | Which area of the brain is primarily responsible for language comprehension? A) Broca's Area B) Wernicke's Area C) Motor Cortex D) Arcuate Fasciculus | Remember | 3 |
| 6. | Which of the following brain wave types is typically associated with deep sleep?A) Alpha wavesB) Beta waves C) Theta waves  D) Delta waves | Understand | 3 |

**Part B. 10 Marks. Time: 20 Minutes** (Cognitive Level: Remember/Understand/Apply)

Two-Three sentences. 2 Marks Each. Answer All Questions

| Qn.  No. | Question | | Cognitive  Level | Course  Outcome (CO) |
| --- | --- | --- | --- | --- |
| 7. | Match the following | | Remember | 1 |
| **A** | **B** |
| a. Cerebellum | 1. Relays sensory information to the cortex |
| b. Hypothalamus | 2. Coordination of movement and balance |
| c. Thalamus | 3. Regulates emotions and autonomic functions |
| d. Limbic System | 4. Controls body temperature and hunger |
| 8. | What are excitatory and inhibitory neurotransmitters? Give two examples. | | Remember | 2 |
| 9. | What is an action potential? | | Remember | 2 |
| 10. | Describe the role of the Arcuate Fasciculus. | | Understand | 3 |
| 11. | Comment on the applications of deep brain stimulation. | | Apply | 4 |

**Part C. 16 Marks. Time: 35** **Minutes** (Cognitive level: Remember/Understand/Apply/Analyse)

Short Answer. 4 Marks Each. Answer all 4 questions, choosing among options (a) and (b) within each question.

| Qn.  No. | Question | Cognitive  Level | Course  Outcome (CO) |
| --- | --- | --- | --- |
| 12. | (a) Discuss the functions of cranial nerves and spinal nerves.  OR  (b) Describe the functions of the cerebrum and cerebral cortex. | Understand | 1 |
| 13. | (a) How does cerebral lateralization affect handedness?  OR  (b) What are the major sex differences observed in cerebral functions? | Understand | 2 |
| 14. | (a) Apply your understanding of norepinephrine to explain its role in the body.  OR  (b) Analyze the reflex action with suitable examples. | Analyse | 3 |
| 15. | (a) Comment on the applications of brain lesioning with respect to neurological disorders.  OR  (b) Explain the applications of CT scan. | Apply | 4 |

**Part D. 24 Marks. Time: 60 Minutes** (Cognitive Level: understand/Apply/Analyse/Evaluate/Create)

Long Answer. 6 Marks Each. Answer all 4 questions, choosing among options (a) and (b) within each question.

| Qn.  No. | Question | Cognitive  Level | Course  Outcome (CO) |
| --- | --- | --- | --- |
| 16. | (a) Describe the structure and types of neurons.  OR  (b). Discuss the role of glial cells in the nervous system. | Understand | 1 |
| 17. | (a) Describe the structure and functions of the spinal cord  OR  (b) Define synaptic transmission and distinguish between chemical and electrical synapses. | Understand | 2 |
| 18. | (a) Analyse how the symptoms of Wernicke’s aphasia differ from those of Broca’s aphasia and the implications for communication.  OR  (b) Discuss the impact of brain damage on language functions, with a focus on conduction aphasia and global aphasia. | Analyse | 3 |
| 19. | (a) Explain how deep brain stimulation and stereotactic surgery can be used in neurological conditions.  OR  (b) Comment on the working principle and applications of PET scan. | Apply | 4 |

| Cognitive Level | Marks | Percentage |  | Course Outcomes | Marks | Percentage |
| --- | --- | --- | --- | --- | --- | --- |
| Remember | 8 | 14.28 |  | CO1 | 14 | 25 |
| Understand | 26 | 46.42 |  | CO2 | 16 | 28.57 |
| Apply | 12 | 21.42 |  | CO3 | 14 | 25 |
| Analyse | 10 | 17.85 |  | CO4 | 12 | 21.43 |
| Evaluate | 0 | 0 |  |  |  |  |
| Create | 0 | 0 |  |  |  |  |
| TOTAL | 56 | 100 |  | TOTAL | 56 | 100 |