

All questions are compulsory (1 mark for each correct answer)

1. Centre for heat, touch, cold and pressure are in
 - a) Frontal lobe
 - b) Occipital lobe
 - c) Temporal lobe
 - d) Parietal lobe
2. Which of the following glands is responsible for producing cortisol?
 - a) Pineal gland
 - b) Adrenal gland
 - c) Thyroid gland
 - d) Pancreas
3. Sarah, a 25-year-old woman, has been experiencing feelings of sadness, lack of energy, and loss of interest in activities she used to enjoy. She also has difficulty concentrating and sleeping. Her doctor suspects a neurotransmitter imbalance and decides to explore treatment options. Which neurotransmitter is associated with mood regulation?
 - a) Serotonin
 - b) Dopamine
 - c) Acetylcholine
 - d) GABA (gamma-aminobutyric acid)
4. Neuroplasticity refers to the brain's ability to:
 - a) Regenerate damaged neurons
 - b) Adapt and change in response to experiences
 - c) Control the body's voluntary movements
 - d) Transmit electrical signals across synapses
5. Which brain scanning technique measures changes in electrical activity across the scalp to detect and record brain wave patterns?
 - a) Magnetic Resonance Imaging (MRI)
 - b) Positron Emission Tomography (PET)
 - c) Electroencephalography (EEG)
 - d) Diffusion Tensor Imaging (DTI)
6. Which brain scanning method uses powerful magnets and radio waves to create detailed images of the brain's soft tissues and structures?
 - a) Single-Photon Emission Computed Tomography (SPECT)
 - b) Electroencephalography (EEG)
 - c) Positron Emission Tomography (PET)
 - d) Magnetic Resonance Imaging (MRI)
7. Curare is a natural compound derived from plants that acts as an antagonist to which neurotransmitter?
 - a) Acetylcholine
 - b) Dopamine
 - c) Serotonin
 - d) GABA
8. Black widow spider venom contains a neurotoxin that acts as an agonist for which neurotransmitter?
 - a) Norepinephrine
 - b) Dopamine
 - c) Serotonin

- d) Acetylcholine
9. How does an SSRI work to alleviate her symptoms?
- a) By increasing the release of serotonin in the synaptic cleft
 - b) By inhibiting the reuptake of serotonin, leading to increased serotonin availability
 - c) By enhancing the binding of serotonin to its receptors in the brain
 - d) By reducing the production of serotonin in the presynaptic neurons
10. A patient named John experienced difficulty recognizing and responding appropriately to facial expressions of fear and anger after sustaining damage to a specific brain region. Which brain structure is most likely affected in John's case?
- a) Amygdala
 - b) Hippocampus
 - c) Wernicke's Area
 - d) All of the above
11. The corpus callosum is a major bundle of nerve fibers that:
- a) Connects the brainstem to the spinal cord
 - b) Controls voluntary muscle movements
 - c) Facilitates communication between the left and right cerebral hemispheres
 - d) Regulates the body's internal clock
12. The limbic system is a group of brain structures primarily involved in:
- a) Motor control and coordination
 - b) Visual processing and perception
 - c) Emotion, memory, and motivation
 - d) Auditory processing and language comprehension

Section B

Attempt only 3 question (6 mark for each correct answer)

1. Describe brain stem and its functions.
2. Describe neuron and synaptic transmission.
3. Describe sympathetic nervous system.
4. Describe endocrine system.

Section C

Attempt any 2 questions (10 Marks)

1. Describe the role and function of various neurotransmitters.
2. Describe the role and functions of various lobes of brain.
3. Describe the various methods of studying the brain.