

QP Code: D145408	Total Pages: 4	Name:
		Register No.
SECOND SEMESTER FIVE YEAR INTEGRATED P.G. – FYIP – REGULAR EXAMINATION APRIL 2026		
ENGLISH		
ENG2IA103(2): ADVANCED ENGLISH LANGUAGE SKILLS FOR SCIENCES		
2025 Admission		
Maximum Time: 1.5 Hours	Maximum Marks: 50	
Section A		
Read the following Passage and answer the following questions. Each question carries 2 marks. (Ceiling: 16 Marks) The human brain, a three-pound universe of gelatinous tissue, stands as the most complex known structure in the cosmos. Its architecture is a masterclass in evolutionary engineering, balancing efficiency with immense processing power. At its core, the brain is composed of roughly 86 billion neurons, each a microscopic processing unit that communicates with thousands of others via specialized connections called synapses. This neural network is organized into distinct but highly interconnected regions. The cerebral cortex, the wrinkled outer layer, is the seat of our highest cognitive functions, divided into lobes responsible for planning (frontal), sensation (parietal), hearing (temporal), and vision (occipital). Deeper structures, like the limbic system, govern emotion and memory, while the brainstem and cerebellum manage autonomic functions and motor coordination. This division of labor, known as localization of function, is not rigid; the brain's true genius lies in its plasticity—its ability to reorganize itself by forming new neural pathways throughout life, allowing for learning, adaptation, and recovery from injury. The brain's physical structure, therefore, is not a static map but a dynamic, living scaffold that continuously reshapes itself in response to experience. Beyond its physical structure, the brain's operation is a breathtaking electromechanical symphony. Neurons communicate through a combination of electrical impulses and chemical neurotransmitters. An electrical signal, or action potential, travels down a neuron's axon, triggering the release of neurotransmitters into the synaptic cleft, the microscopic gap between neurons. These chemicals then bind to receptors on the receiving neuron, either exciting or inhibiting its own electrical activity. This intricate dance of excitation and inhibition, occurring billions of times per second, underpins every thought, memory, and action. The brain's energy consumption is immense, accounting for about 20% of the body's total oxygen and caloric intake, despite being only 2% of its mass, highlighting the intensity of this constant neural chatter. This continuous wave of electrochemical activity is not random; it produces distinct patterns of oscillations, or brain waves, that correlate with different states of consciousness—from the high-frequency beta waves of active problem-solving to the slow delta waves of deep, dreamless sleep. It is within this electrical storm that the emergent property of consciousness is believed to arise, a phenomenon that remains one of science's greatest mysteries.		

The ultimate purpose of the brain is to generate behavior and guide an organism through its environment, and its study bridges the gap between biology and psychology. Every decision, from the reflexive withdrawal from a hot surface to the complex deliberation of a moral dilemma, originates from neural activity. The brain integrates sensory information from the outside world with internal bodily states and memories to create a cohesive model of reality, which in turn informs our actions. This integrative process is the foundation of perception, cognition, and personality. However, the brain is also vulnerable; neurodegenerative diseases like Alzheimer's and Parkinson's, psychiatric disorders like depression and schizophrenia, and traumatic injuries can disrupt its delicate balance, revealing the profound link between neural circuitry and our sense of self. Modern neuroscience, armed with powerful tools like functional MRI and optogenetics, is now beginning to map this intricate web of causality, promising revolutionary treatments for these conditions. Yet, each answer brings new questions, particularly regarding the nature of free will and the possibility of artificial consciousness. As we stand on the precipice of decoding the brain's ultimate secrets, we are not just investigating an organ; we are undertaking the profound journey of understanding what it means to be human, exploring the very organ that allows us to ask the question in the first place.

1	According to the passage, what is the approximate number of neurons in the human brain? A) 860 million B) 86 billion C) 86 trillion D) 8.6 billion
2	Which lobe of the cerebral cortex is primarily responsible for planning and higher cognitive functions? A) Temporal lobe B) Parietal lobe C) Occipital lobe D) Frontal lobe
3	What modern tool is mentioned as being used by neuroscience to map the brain's circuitry? A) Electroencephalogram (EEG) B) Computed Tomography (CT) scan C) Functional MRI (fMRI) D) X-ray imaging
4	What is the term for the brain's ability to reorganize itself by forming new neural pathways throughout life? A) Localization B) Neurogenesis C) Plasticity D) Synaptic pruning
5	Approximately what percentage of the body's total oxygen intake does the brain consume?

	A) 2% B) 10% C) 20% D) 50%
6	Which type of brain wave is associated with deep, dreamless sleep? A) Beta waves B) Alpha waves C) Theta waves D) Delta waves
7	The passage states that the brain's operation is described as a combination of electrical impulses and what other type of signal? A) Magnetic fields B) Thermal gradients C) Chemical neurotransmitters D) Osmotic pressure
8	Which of the following is NOT mentioned as a vulnerability of the brain? A) Neurodegenerative diseases B) Traumatic injuries C) Psychiatric disorders D) Viral infections
9	Which deeper brain structure is mentioned as governing emotion and memory? A) The brainstem B) The cerebellum C) The limbic system D) The occipital lobe
10	According to the passage, what is the ultimate purpose of the brain? A) To consume energy B) To generate behavior and guide an organism C) To store long-term memories D) To regulate body temperature
Section B	
All Questions can be answered. Each Question carries 6 marks (Ceiling : 24 Marks)	
11	Analyze how Jo Ann Beard uses the symbol of the dying collie in "The Fourth State of Matter" to explore themes of grief and personal paralysis.
12	Evaluate the moral and theological dilemma faced by the Jesuit astrophysicist at the end of Arthur C. Clarke's "The Star."
13	Explain how Neil deGrasse Tyson uses the discovery of helium and "nebulium" to support his argument about the universality of physical laws in "On Earth as in the Heavens."
14	Interpret the significance of the child's question "Why are we here?" in Rosebud Ben-Oni's

	"All Palaces are Temporary Palaces," and explain what this moment reveals about the poem's larger message.
15	According to Descartes in the "Preface to the Reader," what conditions must a reader meet to benefit from the Meditations, and what is his primary purpose for writing the work?
Section C	
Answer any ONE. Each Question carries 10 marks (1x10=10 Marks)	
16	Evaluate the significance of the Silent Valley campaign as portrayed in P. Baburaj and C. Sarat Chandran's documentary "Only An Axe Away."
17	Evaluate the documentary 'A Trip to Infinity's effectiveness in explaining the concept of infinity, considering both its scientific content and its visual presentation.