22PSU519NA

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2026
(Fifth Semester)

Branch - **PSYCHOLOGY**

BIOLOGICAL PSYCHOLOGY

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Question No.	Question	K Level	CO
1	The discovery of the double helix structure of DNA was made by: a) Rosalind Franklin b) Watson and Crick c) Thomas Hunt Morgan d) Erwin Chargaff	K1	CO1
2	Sickle-cell anaemia results from a mutation affecting: a) Insulin production b) Beta-globin chain of haemoglobin c) Collagen synthesis d) Platelet formation	K2	CO2
3	Which glial cell forms the myelin sheath in the Central Nervous System? a) Schwann cell b) Oligodendrocyte c) Astrocyte d) Microglia	K1	CO1
4	The sympathetic nervous system primarily prepares the body for: a) Rest and digestion b) Sleep and relaxation c) Fight or flight responses d) Voluntary muscle movement	K2	CO2
5	The resting membrane potential of a typical neuron is approximately: a) +70 mV b) –70 mV c) –30 mV d) +30 mV	K1	CO1
6	The small gap between two neurons where neurotransmission occurs is called: a) Axon hillock b) Synaptic cleft c) Myelin sheath d) Soma	K2	CO2
7	A hormone that acts on the same cell that secreted it is called: a) Paracrine b) Endocrine c) Autocrine d) Exocrine	K1	CO1
8	Which of the following is an endocrine gland? a) Sweat gland b) Salivary gland c) Thyroid gland d) Sebaceous gland	K2	CO2
9	Long-Term Potentiation (LTP) is primarily associated with: a) Weakening of synaptic strength b) Strengthening of synaptic connections after repeated stimulation c) Decrease in receptor density d) Reduction in neurotransmitter release	K1	CO2
10	Which neuroimaging method provides real-time electrical activity with high temporal resolution? a) MRI b) EEG c) fMRI d) CT	K2	CO2

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Question No.	Question	K Level	CO
11.a.	Describe the process of transcription and translation in protein synthesis.	K3	CO1
	(OR)		
11.b.	Explain the concept of the selfish gene and its relationship to kin selection.		
12.a.	Differentiate Neurons and Glial Cells with examples.	K3	CO2
	(OR)		
12.b.	Explain the process of neural development leading to the maturation of the adult nervous system.		
13.a.	Draw and explain the structure of a neuron, highlighting each major part and its function.	K3	CO2
	(OR)		
13.b.	Differentiate between excitatory and inhibitory postsynaptic potentials (EPSP vs IPSP).		
14.a.	Distinguish exocrine and endocrine glands with two examples each.	K5	CO2
	(OR)		
14.b.	Explain types of hormone signaling: paracrine, endocrine, and autocrine.		
15.a.	Explain Hebb's theory of cell assembly and synaptic strengthening.	K4	CO3
	(OR)		
15.b.	Distinguish the procedure and clinical significance of Event-Related Potentials (ERPs).		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Question No.	Question	K Level	CO
16	Explain any 3 major genetic disorders focusing on their causes, inheritance patterns, and key symptoms.	K5	CO3
17	Evaluate the processes of neural lateralization and specialization, and discuss how these contribute to complex functions such as language, creativity, and "genius."	K5	CO3
18	Explain intracellular signaling in neurons, covering resting potential, action potential, and the All-or-None law.	K5	CO3
19	Distinguish the biological bases of normal and abnormal expressions of personality, and relate this to hormones and brain function.	K5	CO3
20	Discuss neurophysiological mechanisms of neural plasticity, focusing on long-term potentiation (LTP) and long-term depression (LTD).	K5	CO3

Z-Z-Z END