22MBU206N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2025
(Second Semester)

Branch - **MICROBIOLOGY**

CELL BIOLOGY AND MICROBIAL GENETICS

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	Which of the following cell organelles is called a suicidal bag? a) lysosomes b) nucleus c) ribosomes d) mitochondria	K1	CO1
2	Nuclear DNA replicates in the _____ phase. a) G1 phase b) S phase c) G2 phase d) M phase	K2	CO1
3	Simple nerve reflexes use signaling molecules called a) neurotransmitters b) G proteins c) nitric oxides d) proteases	K1	CO2
4	Cell junction is abundant in _____ a) hepatic cells b) cardiac cells c) epithelial cells d) prokaryotic cells	K2	CO2
5	Who discovered jumping genes? a) Griffith b) McClintock c) Harvey d) Abelson	K1	CO3
6	The plasmids can be eliminated from a cell by the process known as a) curing b) breaking c) fixing d) expulsion	K2	CO3
7	Choose the INCORRECT statement about mutation. a) Mutation is reversible process b)Major source of evaluation c) Usually deleterious and recessive d) It is predestined	K1	CO4
8	Which of the following chemical mutagen affects only replicating DNA? a) Acridine b) Alkylating agent c) Deaminating agent d) Base analog	K2	CO4
9	_____ transport bacterial DNA to other strain via bacteriophages. a) conjugation b) translation c) transduction d) transformation	K1	CO5
10	Conjugation can't take place between a) F^- and F^+ b) HFR and F^+ c) F and F^- d) HFR and F^-	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

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

Question No.	Question	K Level	CO
11.a.	Inspect about the various checkpoints in cell cycle.	K4	CO1
	(OR)		
11.b.	Contrast the principles of cell theory and its importance.		
12.a.	Justify the four classes of cell junctions and the function of each.	K4	CO2
	(OR)		
12.b.	What are selectins? What cell type expresses these proteins? What cell type bind to? Why is this important?		
13.a.	Interpret the mechanism of transposition.	K3	CO3
	(OR)		
13.b.	State plasmids and list out general types and its functions.		
14.a.	Simplify the various methods of DNA repair.	K4	CO4
	(OR)		
14.b.	Identify how alkylating agents involved in mutations?		
15.a.	State out the role of Rec A protein in genetic recombination.	K3	CO5
	(OR)		
15.b.	Describe the chemical transformation.		

SECTION -C (30 Marks)

Answer **ANY THREE** questions

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

Question No.	Question	K Level	CO
16	Describe the phases of mitosis and meiosis with representing diagrams.	K5	CO1
17	Explain the major categories of cell surface receptors involved in cell signaling.	K6	CO2
18	Evaluate in detail about the experiment that led to prove DNA as genetic material.	K5	CO3
19	Discuss broadly the types of mutation with examples.	K5	CO4
20	Elaborate on Generalized and specialized transduction.	K6	CO5

Z-Z-Z END