

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(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)

Module No.	Question No.	Question	K Level	CO
1	1	Which of these scientists formulated the cell theory? a) Schleiden and Schwann b) Rudolf Virchow c) Robert Koch d) Leeuwenhoek	K1	CO1
	2	Which of the following cell organelles does not contain DNA? a) Nucleus b) Lysosomes c) Chloroplast d) Mitochondria	K1	CO1
2	3	Which of the following proteins forms channels that permit electrical communication between cells across gap junctions? a) Ephrin b) Cadherin c) Connexin d) Catenin	K1	CO2
	4	The process by which extracellular messages translate into intracellular changes is termed _____ a) cell signaling b) cell adhesion c) signal transduction d) cell transformation	K2	CO2
3	5	Find the incorrect statement about plasmids a) Circular b) Replicate independently c) Transferrable d) Single stranded	K2	CO3
	6	The enzyme that catalyzes the transposition of an IS element is called _____ a) Transposase b) Integrase c) Transcriptase d) Polymerase	K2	CO3
4	7	If the mutation has a negligible effect on the function of a gene, it is known as a _____ a) Silent mutation b) Frame shift mutation c) Substitution mutation d) Insertion mutation	K2	CO4
	8	The enzyme photolyase is used in what method of repair? a) Base excision b) Photo reactivation c) Nucleotide excision d) None of the mentioned	K2	CO4
5	9	What should be the minimum weight of DNA that is required for a successful transformation? a) 1000 daltons b) 100,000 daltons c) 300,000 daltons d) 8 million daltons	K1	CO5
	10	The Hfr chromosome is transferred to the F ⁻ cell in a _____ fashion. a) circular b) coiled c) dime d) linear	K2	CO5

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Interpret your views on Cell theory	K2	CO1
	(OR)			
	11.b.	Give outline note on Structure of Mitochondria	K2	CO1
2	12.a.	Identify the role Cell junctions in cell metabolism	K3	CO2
	(OR)			
	12.b.	Explain the importance of Neurotransmitters in detail.	K2	CO2
3	13.a.	Experiment with Griffith about the DNA as genetic material.	K3	CO3
	(OR)			
	13.b.	Identify the important characteristic features of Transposons.	K3	CO3
4	14.a.	Analyse the impacts of Physical mutagenesis.	K4	CO4
	(OR)			
	14.b.	Examine in detail about Excision repair	K4	CO4
5	15.a.	Give your simplified views on the properties of Transformation	K4	CO5
	(OR)			
	15.b.	Conclude the importance of Hfr X F ⁻ mapping.	K4	CO5

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Assume your views on structure of Eukaryotic cell organelles.	K4	CO1
2	17	Analyze the significance of cell signaling.	K4	CO2
3	18	Categorize different types of Plasmids based on their functions.	K4	CO3
4	19	Conclude the role of mutational hot spots.	K4	CO4
5	20	Examine in detail account on roll of Rec A protein in genetic recombination.	K4	CO5

Z-Z-Z END