

**PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)**

**BSc DEGREE EXAMINATION MAY 2022
(Second Semester)**

Branch – MICROBIOLOGY

CELL BIOLOGY AND MICROBIAL GENETICS

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Which of the following is a functional unit of a body?
(i) Mitochondria (ii) Cytoplasm
(iii) Spleen (iv) Cell
- 2 Name the state where never dividing cells of neurons and skeletal muscle present?
(i) G0 (ii) G1
(iii) G2 (iv) M
- 3 Who proved that DNA was indeed the genetic material through experiments?
(i) Alfred Hershey and Maclyn McCarty (ii) Oswald Avery and Maclyn McCarty
(iii) Oswald Avery and Martha Chase (iv) Alfred Hershey and Martha Chase
- 4 What is the detection technique of auxotrophs?
(i) Spread plating (ii) Replica plating
(iii) Streaking (iv) Pouring
- 5 Which type of E.coli strain was chosen to prove the experiment of conjugation?
(i) Prototrophs (ii) Auxotrophs
(iii) Polyauxotrophs (iv) Autotrophs

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Explain the concepts involved in cell theory.
OR
b Describe the structure and functions of Microtubules.
- 7 a Narrate the process involved in programmed cell death.
OR
b Summarize the steps involved in Mitotic cell division.
- 8 a DNA as a genetic material . Prove with a suitable experiment
OR
b Classify different types of plasmid.
- 9 a Describe the significance of AMES test in gene mutation.
OR
b Explain SOS repair mechanism in DNA damage.

Cont...

- 10 a Explain the process of generalized transduction in bacteria.
OR
b State the role of Rec A in genetic transformation.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Differentiate prokaryotic and eukaryotic cellular organization.
OR
b Elucidate the structure and function of Mitochondria with a neat diagram.
- 12 a Summarize the process involved in Prophase I in Meiosis
OR
b Discuss in detail about Cell adhesion molecules involved in cell to cell interaction.
- 13 a Outline the structure of DNA with suitable diagram.
OR
b Categorize different types of transposon and its application in genetics.
- 14 a Enumerate different types of gene mutation .
OR
b Explain photoreactivation process in eukaryotes.
- 15 a Outline the ways of transformation of *E.coli* with foreign DNA.
OR
b Discuss in detail about conjugation in bacteria.

Z-Z-Z

END