18BOU23

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2024
(Sixth Semester)

Branch – **BOTANY**

GENETIC ENGINEERING

Time: Three Hours Maximum: 50 Marks

SECTION-A (5 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (5 x 1 = 5)

1 For isolating DNA from plants, the most suitable method is
(i) CTAB method (ii) SDS-phenol extraction
(iii) SDS-proteinase K treatment (iv) all of these

2 Which organism has the highest number of vectors?
(i) Yeast (ii) Mammalian cells
(iii) E.coli (iv) Fungi

3 Artificial gene synthesis was first done in
(i) DNA (ii) RNA
(iii) Protein (iv) Carbohydrates

4 Technique for transferring foreign DNA into a host organisms DNA is known as
(i) Blotting technique (ii) Gene cloning technique
(iii) Recombinant DNA technology (iv) PCR technique

5 Sugar baby is a variety of
(i) Cucumber (ii) Bottle gourd
(iii) Onion (iv) Watermelon

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a Bring out the principle of electrophoresis.
OR
b Apply the method of Dideoxy for DNA sequencing.

7 a Produce the mechanism of ligase enzyme with examples.
OR
b Outline the application of phage vector.

8 a Explain briefly about the screening of DNA libraries.
OR
b How do you make a hybridoma?

9 a Explain the insertional inactivation.
OR
b Describe briefly about the dot blot technique.

10 a Analyze the importance of preventive vaccines and its types.
OR
b How the method of genetic engineering is used in livestock production?

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Summarize the nucleic acid labeling methods.

OR

b Elucidate the extraction of RNA from plant materials.

12 a Discuss in detail the lambda vectors in a E.coli.

OR

b Select and give the procedure for genetic transformation.

13 a Analyze the principle, steps and applications of PCR.

OR

b Examine the monoclonal antibodies and its types.

14 a Outline the techniques for western blotting.

OR

b Categorize the steps involved in mRNA translation through *in vitro* method.

15 a Discuss in detail about gene therapy and different methods used in gene therapy.

OR

b Examine the applications of genetic engineering techniques in crop improvement.

Z-Z-Z END