

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2022
(Sixth Semester)

Branch – BOTANY

GENETIC ENGINEERING

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 1 = 10)

- 1 Find the protein precipitating reagent used in DNA isolation is
(i) Lysosome (ii) Ribonuclease
(iii) Phenol:Chloroform (iv) Proteinase K
- 2 Non-Radioactive labelling is done by labelling with
(i) End filling (ii) Random Priming
(iii) horseradish peroxidase (iv) None of the above
- 3 Name the λ cohesive ends
(i) *cos* site (ii) sticky ends
(iii) Restriction site (iv) MCS
- 4 Identify the process of preparing cell for DNA uptake
(i) Transformation (ii) Transformation
(iii) Competent cell preparation (iv) Transfection
- 5 Promotor region in the plasmid _____ the gene expression.
(i) induces (ii) repress
(iii) is useless in (iv) controls
- 6 The success of PCR reaction indicates the dependency of
(i) Primer designing (ii) DNA Polymerase
(iii) Template concentration (iv) All of the above
- 7 What are the two components of the functional β -gal?
(i) ω and α (ii) μ and β
(iii) α and β (iv) ω and β
- 8 State the use of *In vitro* translation
(i) creating mutation (ii) gene product identification
(iii) protein kinetics studies (iv) All of the above
- 9 Gene therapy refers to
(i) replacing disease causing genes (ii) Introducing modified genes
(iii) only (i) (iv) both (i) and (ii)
- 10 Choose from the following the nature of Covaxin vaccine.
(i) Live, attenuated (ii) subunit
(iii) inactivated (iv) conjugate

Cont...

SECTION - B (35 Marks)

Answer **ALL** Questions

ALL Questions Carry **EQUAL** Marks (5 x 7 = 35)

- 11 a Explain the CTAB method for isolating plant genomic DNA.
OR
b Analyse the labelling of DNA molecules.
- 12 a Outline different types of plasmids.
OR
b Summarise the events of transfection.
- 13 a Explain briefly the construction of Genomic DNA library.
OR
b What is cDNA synthesis? Write down the steps involved in it.
- 14 a Describe briefly about the Northern blot.
OR
b Explain the procedure of *in vitro* translation.
- 15 a What is gene therapy? Discuss any two methods.
OR
b What are transgenic plants? Explain how they are produced.

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

- 16 Elucidate the steps in Genetic Engineering. Point out a few applications.
- 17 Highlight the features of λ phage.
- 18 Examine the screening of clones.
- 19 Discuss in detail 'Alpha Complementation' and its role in selecting clones.
- 20 Discuss in detail different types of vaccines and their production.

Z-Z-Z

END