

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2017
(Sixth Semester)
Branch- BOTANY

GENETIC ENGINEERING

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 What are the methods used for quantification of nucleic acids?
- 2 What is DNA sequencing?
- 3 Define vector.
- 4 What is chimeric DNA?
- 5 What is colony hybridization?
- 6 What are monoclonal antibodies?
- 7 What is mutant complementation?
- 8 What are molecular probes?
- 9 Comment on golden rice.
- 10 What are the commonly used animals for transgenesis?

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Give a schematic sketch on the extraction of RNA from plant tissues.
OR
b Describe the technique of labeling of nucleic acids.
- 12 a Explain the types of restriction endonucleases.
OR
b Briefly describe the features of one plasmid and one phage vector for 'E.Coli.
- 13 a How will you isolate the desired gene to be cloned?
OR
b Describe the various steps of PCR and list its variations.
- 14 a Explain about the *in vitro* translation of mRNA.
OR
b Illustrate the dot blot technique.
- 15 a Define gene therapy and describe the various approaches of gene therapy.
OR
b Describe the approaches for the production of disease resistant transgenic plants.

SECTION - C (30 Marks)

Answer any THREE Questions

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

- 16 Write an essay on Sanger's method of DNA sequencing.
- 17 Explain the *Agrobacterium* mediated gene transfer method. *
- 18 Describe in detail about the stages of hybridoma production.
- 19 Give a detailed account on selection of recombinants by insertional inactivation.
- 20 Transgenic animals may become valuable bioreactors for gene farming - comment on the statement.