



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

U.G. DEGREE EXAMINATION – **ALLIED**

FOURTH SEMESTER – **APRIL 2024**

UPB 4401 – PLANT BIOTECHNOLOGY AND BIOSTATISTICS

Date: 13-04-2024

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

SECTION A - K1 (CO1)

Answer ALL the Questions

(10 x 1 = 10)

1. Fill in the blanks

- a) In plant tissue culture, the plant part used for inoculation is called as -----.
- b) PCR technique was developed by who was awarded the Nobel Prize.
- c) *A. rhizogenes* causes disease in dicot plants.
- d) Multiple bar diagram can represent -----sets of numerical data.
- e) Chi-square test is basically a data analysis on the basis of observed one with -----.

2. State whether the following statements are TRUE or FALSE

- a) Anther culture is the process of using anthers to produce diploid (2n) plantlets.
- b) In genetic engineering foreign novel gene is introduced into a host cell genome.
- c) Microinjection involving the mechanical insertion of the desirable DNA into a target cell.
- d) The measure of dispersion indicates the average of a data.
- e) A worksheet is made up of individual cells which contain a value and a formula.

SECTION A - K2 (CO1)

Answer ALL the Questions
10)

(10 x 1 =

3. Choose the correct answer

- a) **The pair of hormones required for a callus to differentiate are.....**
i) Ethylene and Auxin ii) Auxin and cytokinin iii) Auxin and Absciscic acid iv) Cytokinin and gibberellin
- b) In southern blotting, the first step in the process is
i) DNA denaturation ii) DNA Amplification iii) DNA Replication iv) DNA digestion with restriction enzyme
- c) The genetic material that *Agrobacterium* transfers to plant cells is called.....
i) T-DNA ii) P-DNA iii) L-DNA iv) R-DNA
- d) **The two methods of finding mode in a discrete series are.....**
i) Grouping method and ascending ii) Table and mid-point method iii) Grouping and inspection method iv) All the above
- e) Variance of sample mean from the population mean is due to.....
i) Sampling error ii) Wrong method of data collection iii) Random sampling iv) Population error

4. Answer the following, each in about 50 words

- a) Mention the major constituents of MS- medium.
- b) Give the significance of Restriction digestion.
- c) Comment on Electroporation.
- d) List the importance of probability.
- e) Write note on variance.

SECTION B - K3 (CO2)	
	Answer any TWO of the following in 500 words (2 x 10 = 20) Draw diagrams / flowcharts wherever necessary
5.	Summarize on scopes of plant tissue culture.
6.	Describe about principle, steps and types of polymerase chain reaction.
7.	Explain the physical methods of gene transfer.
8.	Narrate the procedure involved in SPSS.
SECTION C – K4 (CO3)	
	Answer any TWO of the following in 500 words (2 x 10 = 20) Draw diagrams / flowcharts wherever necessary
9.	Describe the meristem culture methods. Cite the advantages.
10.	Present the details about agarose gel electrophoresis.
11.	Explain Co-efficient of variation.
12.	Compare the types of population and the types of sampling.
SECTION D – K5 (CO4)	
	Answer any ONE of the following in 1000 words (1 x 20 = 20) Draw diagrams / flowcharts wherever necessary
13.	With illustrations, write details on anther culture.
14.	Highlight the stages involved in isolation and culture of protoplast.
SECTION E – K6 (CO5)	
	Answer any ONE of the following in 1000 words (1 x 20 = 20) Draw diagrams / flowcharts wherever necessary
15.	Summarize the methods and importance of measures of central tendency.
16.	Describe about types and probability of population.

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