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3. Write short notes on any three : (3×5=15)

- (i) Laminar flow
- (ii) Herbarium for preservation of plant specimens
- (iii) Agarose gel electrophoresis
- (iv) Biological waste management

4. (a) Plating techniques for culturing. (5)

(b) Describe the various steps in specimen preparation for microscopic studies of plant specimens. (10)

5. (a) Describe methods of classification and tabulation of data. (10)

(b) Compute the mean and standard deviation of the longest pod length in *Pisum* (in mm) grown in a specific area: 112, 100, 127, 120, 134, 118, 105, 110. (5)

(200)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 3506

I

Unique Paper Code : 2164001004

Name of the Paper : Basic Laboratory and Field Skills
in Plant Biology

Name of the Course : GE - Botany (UGCF-NEP)

Semester : I

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **four** questions in all.
3. Question No. 1 is compulsory.
4. **All** parts of a question must be answered together.
5. Draw well-labeled diagrams wherever necessary.

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1. (a) True and False : (5×1= 5)

- (i) Electrophoresis is a technique used to separate molecules based on size and charge.
- (ii) Pour plating is performed by spreading the culture onto a pre-solidified agar surface.
- (iii) Electron microscopes require a vacuum to prevent electron scattering by air molecules.
- (iv) Median is the value that appears most frequently in a dataset.
- (v) LR (Laboratory Reagent) grade chemicals are purer than AR (Analytical Reagent) grade chemicals.

(b) Expand the following (any five) : (5×1=5)

- (i) BOD
- (ii) CFU
- (iii) SDS
- (iv) HEPA
- (v) EDTA
- (vi) BLAST

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(c) Fill in the blanks (any five) : (5×1=5)

- (i) To prepare 200 mL of a 2% (v/v) ethanol solution, you would need mL of ethanol.
- (ii) A microscope has 4X ocular lens and 10x objective, microscope's total magnification is X.
- (iii)store information on biological entities such as genes, proteins, and metabolic pathways.
- (iv) An instrument which is used to sterilize glassware and chemicals is

2. Differentiate between any five : (5×3=15)

- (i) TEM and SEM
- (ii) Spread plate method and pour plate method
- (iii) Primary data and secondary data
- (iv) Molarity and Normality
- (v) Mean and mode
- (vi) Micrometer and haemocytometer

P.T.O.