

Time: 3 hours

Marks: 100

Q1) A) Fill in the blanks choosing the correct options given in the bracket and rewrite the sentence:

(5 Marks)

- a) In the statistical term _____, the data divided in to two sides, in which one is greater and the other is smaller. (Mode, Median, Mean)
- b) _____ is the gram molecular weight of solute dissolved in one kilogram of solvent. (Normality, Molarity, Molality)
- c) _____ method of transgenesis is used to insert the DNA fragment into the embryonic stem cell.
(Cloning, DNA microinjection, Embryonic stem cell transplant)
- d) Insulin hormone is secreted by _____ of pancreas.
(β cells, δ cells, λ cells)
- e) _____ instrument is used to count the hydrogen ion concentration in the solution.
(Electrophoresis, pH meter, colorimeter)

B) Match the **columns I and II** and rewrite:

(5 Marks)

Column I**Column II**

- | | |
|-----------------------------|------------------------|
| a) Biohazards | i) Bar Diagram |
| b) Graphical representation | ii) DNA Fingerprinting |
| c) Celsius | iii) Pathogenic virus |
| d) RFLP | iv) Gene therapy |
| e) Cystic fibrosis | v) Temperature scale |

C) State whether **true or false**.

(5 Marks)

- a) Oxidising chemicals can destroy body tissue and metal parts.
- b) Mode value is always the middle value of the sample data.
- c) Deficiency of ADA enzyme causes Cystic fibrosis.
- d) PAGE electrophoresis method can be used to separate mixture of carbohydrate samples.
- e) Compound microscope can be used to magnify up to 10000X magnification.

D) Answer the following in **one sentence**:

(5 Marks)

1. Define Normality
2. Describe Mode
3. What is VNTRs ?
4. Describe chromatography
5. Describe Ultra centrifuge

Q2) A) Answer **any one** of the following:

(10 Marks)

A) Describe the uses of safety symbols and explain the following pictogram Irritants, flammable and Oxidising agent.

OR

A) Explain simple, subdivided and multiple bar diagrams with suitable example.

Q2) B) Write note on any two from the following: (10 Marks)

- a) Molarity
- b) Scope of Biostatistics.
- c) Pie diagram
- d) Safe laboratory measures

Q3) A) Answer any one of the following: (10 Marks)

A) Describe the method of DNA finger printing.

OR

A) Give the achievements in of Biotechnology in the field of Aquaculture/ Animal Husbandry/ Medical.

Q3) B) Write note on any two from the following: (10 Marks)

- a) Ethical issues of transgenesis
- b) Cloning
- c) Describe the method of animal cloning
- d) In-vivo Gene therapy

Q4) Answer any two from the following: (20 Marks)

- a) Describe the principle and application of centrifuge.
- b) Explain the principle and application of Colorimeter.
- c) What is pH? Give principle and application of pH meter.
- d) Describe the components of a compound microscope.

Q5) Write short notes on any Four. (20 Marks)

- a) What are Biohazards
- b) Characteristics of solution
- c) Green Florescent Protein Gene
- d) Method of Nuclear transplantation
- e) Explain the applications of PAGE
- f) Write Principle and application of spectroscopy
