

(3 Hours)

Total Marks:100

- Note: 1) All questions are **compulsory**.
 2) All questions carry **equal marks**.
 3) Draw neat, labeled **diagrams** wherever necessary.

Q1. A. Fill in the blanks by choosing correct option given in the bracket.

05

- a) _____ is the gram molecular weight of solute dissolved in one kilogram of solvent.
 (Molarity, Molality, Normality)
- (b) Transgenic silk worm helps stabilizing silk level by _____ viral outbreak.
 (Increasing, reducing, equalizing)
- (c) The method of _____ involves fusion of blastomeres.
 (Retroviral, Nuclear transplantation, DNA microinjection)
- (d) Magnification of an image depends upon the _____.
 (size of object, magnification power of lens, source of light)
- (e) The hydrogen ion concentration in biological system ranges from about _____. (10^{-2} , $10^{-7.45}$, 10^{-15})

B. Match the column and rewrite.

05

- | I | II |
|------------------------|--------------------------------------|
| a Kilometer | i) Green genes |
| b Milligram | ii) Violet colour absorbed by matter |
| c Jelly fish | iii) 1000 m |
| d 400 nm wave length | iv) 10000 rpm |
| e Clinical centrifuges | v) 0.001gm |

TURN OVER

C. State whether True or False.

05

- a) Kelvin scale is temperature scale having an absolute zero below which temperature does not exist.
- b) Parts per millions denotes one part in 10^{-6} parts.
- c) Dolly was created by transfer of nucleus from ovarian follicle of adult sheep.
- d) The blood factor IX is transfected into sheep whose meat is used as food.
- e) Dissecting microscope has an eyepiece & an objective lens.

D. Answer the following in one sentence.

05

- a) Explain the term Population.
- b) What is aerosol?
- c) Give one application of medical biotechnology.
- d) What is BKM DNA?
- e) Write the different magnifications powers of the objectives.

Q2. A Describe any four safety symbols with respect to their meaning, type of hazards & precautions.

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OR

A Explain non-probability sampling and its sub-types.

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B Explain any two of the following:

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- a) Scope of Biostatistics.
- b) Simple bar diagram with example.
- c) Any two temperature scales.
- d) Normality & molarity.

Q3. A Explain Ex vivo gene therapy with an example.

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OR

A) Describe clonning with respect to Dolly.

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B Write short notes on any two of the following:

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- a) Achievements of Industrial Biotechnology.
- b) Nuclear transplantation method of transgenesis.
- c) Dr. Lalji Singh and DNA finger printing.
- d) Green fluroscent protein.

TURN OVER

Q4.

Answer any two of the following:-

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- a) Explain the principle & applications of colorimetry.
- b) Describe principle & applications of pH meter.
- c) What is chromatography? Explain with types.
- d) Explain principles & applications of Electrophoresis.

Q5.

Write short Notes on any Four.

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- a) Mode for grouped data with suitable example.
- b) Goals of metric system.
- c) Achievements of biotechnology in the field of animal husbandry.
- d) DNA microinjection method of transgenesis.
- e) Construction & applications of dissecting microscope.
- f) Compound microscope mentioning its different parts.
