

Date: 25.11.2019

Time: (03 Hours)

Total Marks: 100

- N.B. (1) All questions are compulsory.
(2) Figures to the right indicate full marks.
(3) Draw **neat labeled diagrams** wherever **necessary**.

- Q.1. A) Fill in the blanks by choosing appropriate option from the following. (05)
- a) The prefix is used for weight or length both indicating a thousand times the base unit.
(kilo, gram, metre)
 - b) is a set of values recorded on one or more observation units.
(population, sample, data)
 - c) is the invitro DNA replication.
(PCR, RFLP, SCID)
 - d) hormone is secreted by beta cells of islets of Langerhans's of pancreas.
(glucagon, insulin, renin)
 - e) instrument is used to measure the hydrogen ion concentration in the solution.
(pH meter, Electrophoresis, Thin layer chromatography)
- B) Match the following (05)
- | Column 'A' | Column 'B' |
|----------------------|----------------------|
| a) NGCMA | a) ADA gene |
| b) Kelvin | b) Chromatography |
| c) SCID | c) K |
| d) Gustaf de Laval | d) GLP Certification |
| e) Resolution factor | e) Centrifuge |
- C) Write whether **True** or **False**. (05)
- a) A solution is a heterogenous mixture.
 - b) All multiples and sub-multiples of the base units should be in powers of ten.
 - c) DNA fingerprinting method can be used to identify the fingerprint pattern.
 - d) When transmittance is 100%, the absorbance is zero.
 - e) Solutes travelling in the mobile phase interact with the stationary phase.
- D) Answer the following in one sentence. (05)
- a) What is biohazardous infectious material?
 - b) What is the meaning of parts per million (ppm)?
 - c) What is RFLP in DNA Fingerprinting?
 - d) When was Human Genome Project initiated?
 - e) What is pH?

- Q.2. A) Answer **any one** of the two. (10)
- What is temperature? Describe in brief the three scales of measuring temperature.
 - Explain briefly the measures of central tendencies?
- B) Answer **any two** out of the four. (10)
- Pie diagram.
 - Flammable chemicals
 - Explain good laboratory practices
 - Explain simple, subdivided and multiple bar diagrams.
- Q.3. A) Answer **any one** of the two. (10)
- What is Ex-vivo gene therapy? Explain its application in treatment of SCID.
 - Describe in detail the technique of cloning of Dolly.
- B) Answer **any two** out of the four. (10)
- Ethical issues of transgenesis.
 - Applications of DNA finger printing.
 - Application of biotechnology in animal husbandry.
 - Achievements of biotechnology in medicine.
- Q.4. A) Answer **any two** of the following. (20)
- What is chromatography? Explain its principle with reference to paper chromatography.
 - Describe Agarose gel electrophoresis. Add a note on its applications.
 - Principle and applications of colorimetry.
 - Write the principle and application of pH meter.
- Q.5. Write short notes on **any four** out of six. (20)
- Normality
 - Preparation of percent solution
 - Recombinant Insulin
 - Green Fluorescent Protein
 - Scope of biostatistics
 - Applications of Centrifuge
