

Seat No. : _____

NP-101

December-2015

B.Sc., Sem.-III

Core Course-202 : Biotechnology

Time : 3 Hours]

[Max. Marks : 70

1. Answer the following : (Any **Two**) **14**
 - (A) Explain precipitation and discuss measures to enhance the precipitation.
 - (B) Discuss Stoke's law for sedimentation and explain centrifugal force and Relative Centrifugal Force.
 - (C) Write a detailed note on principle and application of HPLC.
 - (D) Discuss the principle of IR spectroscopy and explain the working of instrument.

2. Answer the following : (Any **Two**) **14**
 - (A) Discuss various types of gel diffusion methods used for immunodiffusion assays.
 - (B) Describe principle and uses of ELISA technique.
 - (C) Define Isotopes and discuss the radio isotopes commonly used in biology laboratory.
 - (D) Explain principle and procedure for bioassay of antimicrobial substances.

3. Answer the following : (Any **Two**) **14**
 - (A) Discuss the PCR technique with suitable diagram and define RT-PCR.
 - (B) Explain the importance of Temperature in Hybridization technique.
 - (C) What is meaning of Blotting ? Explain Western-blot techniques and its applications.
 - (D) What is Microarray ? Discuss its principle and uses.

4. Answer the following (Any **Two**) **14**
 - (A) Discuss methods to cultivate Plant viruses.
 - (B) Describe cell culture methods for cultivation of animal viruses.
 - (C) What is purpose of strain improvement ? Explain types of improvement possible in industrial strains.
 - (D) Discuss methods to enumerate viruses.

5. Answer the following :

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- (1) Define Electrophoretic mobility.
 - (2) Define Optical density.
 - (3) Name two materials used to prepare bacteria-proof filters.
 - (4) Define RAST.
 - (5) How Reporter gene is used for bioassay ?
 - (6) What is Scintillation counting ?
 - (7) Write mechanism for Geiger Muller Counter.
 - (8) Give uses of Northern-blot technique.
 - (9) List the factors affecting T_m value of DNA.
 - (10) What is Immuno-PCR ?
 - (11) List characteristics of Primer used in PCR.
 - (12) If 1:10 diluted virus sample shows 5 viral particles with 10 latex beads in EM field, enumerate viruses. (Given : Undiluted sample added with 1000 Latex beads in ml).
 - (13) List types of signs of viral growth in a cell culture.
 - (14) Name two methods used for preservation of industrial cultures.
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