



UN - 212

V Semester B.Sc. Examination, Nov./Dec. 2015

(F+R) (Semester Scheme)

BIOTECHNOLOGY - V

BTP - 501 : Genetic Engineering and Environmental Biotechnology
(70 - 2013-14 and Onwards) (60 - Prior to 2013-14)

Time : 3 Hours

Max. Marks : 70/60

- Instructions :**
- 1) 70 marks for students of 2013-14 and onwards.
 - 2) 60 marks for repeater students prior to 2013-14.
 - 3) Section A, B, C common to all.
 - 4) Section D for students of 2013-14 onwards.
 - 5) Draw neat labelled diagrams wherever necessary.

SECTION - A

I. Write short notes on the following :

(5x2=10)

- 1) EcoR1
- 2) Micro injection
- 3) Northern blotting
- 4) Hydrogen energy
- 5) Lagoons.

SECTION - B

II. Answer any four of the following :

(4x5=20)

- 6) Describe briefly the principle and procedure involved in agarose gel electrophoresis.
- 7) Explain colony hybridisation technique in recombinant screening.
- 8) Explain the salient feature of Lambda phage as vector.
- 9) Give an account of any two heavy metal bioremediation.
- 10) Mention the environmental benefits and risk of genetically modified organisms.



SECTION - C

III. Answer **any three** of the following : (3×10=30)

- 11) Explain plasmid vectors used for gene cloning in Bacteria.
- 12) Describe :
 - a) cDNA library.
 - b) Calcium chloride method of transformation.
- 13) Describe the production of recombinant somatotropin.
- 14) Explain the process of treatment of municipal waste water.
- 15) Explain the bioleaching process of copper in detail.

SECTION - D

IV. Answer the following : (10×1=10)

- 16) Name the two selectable marker on PUC19 vector.
- 17) _____ is a short or long single stranded DNA that is complementary to a specific region of the nucleic acid.
- 18) What are fusion proteins ?
- 19) The enzyme used in PCR is
 - a) Taq polymerase
 - b) Klenow fragment
 - c) Nuclease
 - d) Ligase
- 20) Name any two bacteria used in the production of biofertilizer.
- 21) The recognition site for EcoR1 is _____.
- 22) Name the scientist who created the first patented genetically modified organism pseudomonas putida.
- 23) What are recombinant vaccines ?
- 24) Give any two examples for alternative source of energy.
- 25) What are activated sludge ?