(Pages : 2) **E – 1658**

Reg. No. : .....

Name : .....

Sixth Semester B.Sc. Degree Examination, April 2018
First Degree Programme under CBCSS
BOTANY
Open Course – II – Elective
BO 1661 – Biotechnology and Nano Biotechnology
(2013 Admission Onwards)

Time : 3 Hours Max. Marks : 80

***Instruction** : Draw diagrams **wherever** necessary.*

SECTION – A

I. Answer **all** questions in **one** word to **two** sentences. **Each** question carries **1** mark.

1) Patent
2) Dedifferentiation
3) Embryoids
4) HEPA filter
5) Mention a sterilizing agent in tissue culture
6) DNA fragments with 'sticky ends'
7) Human growth hormone
8) Ligase
9) Bt toxin
10) Quantum dots.

(10×1=10 Marks)

SECTION – B

II. Answer **any eight** questions; **not** to exceed **a** paragraph. **Each** question carries **two** marks.

11) What are liposomes ? Mention their use.
12) Gene library.
13) Why plasmids are used as vectors ?
14) Gene therapy.

P.T.O.

15) Define micropropagation. What are its advantages ?
16) What are pUC vectors ?
17) Edible vaccines.
18) Define DNA sequencing. Mention its use.
19) Enzymes used for protoplast isolation.
20) production of vinegar.
21) What is IPR ?
22) Pollen is most suitable for haploid production. Why ? **(8×2=16 Marks)**

SECTION – C

III. Answer **any six** questions, **not** to exceed **120** words. **Each** question carries **four** marks.

23) Application of nanotechnology in medicine.
24) Give an account of agarose gel electrophoresis.
25) Give an account of the various types of micro organisms used in the production of SCP and the substrates used.
26) What are nif genes and explain their role.
27) What are restriction endonucleases ? Give examples.
28) Application of recombinant microbes.
29) Write an account on Atomic force microscopy.
30) Define callus. What are the applications of callus culture ?
31) What are artificial seeds ? Explain the methods of producing them.

(6×4=24 Marks)

SECTION – D

IV. Write essay on **any two** of the following, **not** more than **three** pages. **Each** question carries **15** marks.

32) Give an account of the composition of tissue culture media. Add a note on sterilization and inoculation of the explants.
33) Describe the various gene transfer techniques used in plants.
34) Give an account of PCR and its applications.
35) Give an account of the methods of microbial culture. Add a note on the media and composition. **(2×15=30 Marks)**