

M. SC. (MICROBIOLOGY) SEM-IV (C.B.C.S.) (2012 COURSE)

:WINTER - 2017

SUBJECT: ELECTIVE : a) ADVANCED BIOTECHNOLOGY

Day : Monday
Date : 06/11/2017

W-2017-0814

Time: 03.00 PM TO 06.00 PM
Max. Marks: 60

N. B. :

- 1) All questions are **COMPULSORY**.
 - 2) Figures to the right indicate **FULL** marks.
 - 3) Draw neat and labelled diagram **WHEREVER** necessary.
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- Q. 1** Elaborate in detail on animal cell culture with reference to following points: **(15)**
- i) Cell culture media
 - ii) Cell culture vessels
 - iii) Types of cell cultures
 - iv) Applications

OR

Write an essay on : Probing marine environment. **(15)**

- Q. 2** a) Explain micropropagation technique and give its applications in plant biotechnology. **(08)**
- b) Explain various methods used for gene transfer in plants. **(07)**

- Q. 3** Attempt **ANY THREE** of the following: **(15)**
- a) Comment on: Somaclonal variations in plant biotechnology.
 - b) Give use of retrovirus as a tool of gene transfer in animal cells.
 - c) Write note on: Drug delivery systems
 - d) Write a note on bioreactors employed in production of plant secondary metabolites.

- Q. 4** Attempt **ANY THREE** of the following: **(15)**
- a) Define the term cytotoxicity and enlist various methods employed in cytotoxicity assay.
 - b) Describe with a flow sheet – Initiation of animal cell culture.
 - c) Write note on : Cell lines
 - d) Comment on biosafety guidelines for the release of GM crops.

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