

**M. SC. (Microbiology) SEM-IV (C.B.C.S.) (2012 COURSE) :
SUMMER - 2019**

SUBJECT : ELECTIVE : ADVANCED BIOTECHNOLOGY

Day : Thursday
Date : 02/05/2019

S-2019-1227

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.
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Q.1 Explain Plant tissue culture technique with reference to following points: **[15]**
i) Micropropagation ii) Callus regeneration

OR

Explain Animal tissue culture technique with reference to following points:

- i) Trypsinization methods
- ii) Subculture
- iii) Suspension culture

Q.2 a) What is cytotoxicity assay? Describe in brief the MTT assay. **[08]**

b) Write use of biotechnological tools in enhancing nutritional quality of rice. **[07]**

Q.3 Answer **ANY THREE** of the following: **[15]**

- a) Write the role of Ri plasmid in producing hairy roots. Comment on applications.
- b) What is aquaculture? Write various methods used to maintain organisms in aquaculture.
- c) Schematically represent the design of fermentor used in PTC.
- d) Give the flow sheet to demonstrate the methodology for phases of clinical trial.

Q.4 Write short notes on **ANY THREE** of the following: **[15]**

- a) IPR and biotechnological products
- b) Algal products
- c) Drug delivery methods
- d) Advantages of Transgenic fish in aquaculture

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