

Class B.T. Semester II ATKT
Subject: Biotechnology - I
Session: Morning / Afternoon

Q. P. Code: 31312

2 ½ Hours

Total Marks: 75

1. Attempt all questions.
2. All questions carry equal marks.
3. Draw neat labeled diagrams wherever necessary.
4. Use of log tables and non-programmable calculator is allowed.
5. For Q.2, Q.3 and Q.4 attempt A and B OR C and D.

Q.1 Do as directed (Any fifteen)

15

1. What is meant by the term 'explant'?
2. _____ is an example of naturally occurring cytokinin.
3. Name any one macronutrient in plant tissue culture media.
4. State true or false: Non-absorbent cotton is used for preparation of plugs in plant tissue culture.
5. State the pore size of HEPA filters.
6. Name any one vitamin used in plant tissue culture media.
7. Name any one Plant growth regulator used in plant tissue culture media.
8. What is *in vitro*?
9. Explain the term passaging.
10. Write the conditions of an ideal autoclave cycle.
11. Which microscope is used in an animal tissue culture lab?
12. Which is the indicator used in animal tissue culture media?
13. What is a cell strain?
14. _____ is referred as the medium through which the information passes. (channel, feedback, receiver)
15. What is Bibliography?
16. What is an oral presentation?
17. State true or false: Review paper summarizes the current state of knowledge of the topic.
18. State true or false: Hand shake is an example of non verbal communication.
19. Give any one physical barrier in communication.
20. Give one example of verbal communication.

Q. 2 A Enlist and explain any four Micronutrients and Four Macronutrients in media used for plant tissue culture. 08

Q. 2 B How would you design a plant tissue culture laboratory for your department? 07

OR

Q. 2 C Explain the principles of callus culture based on following points: 08

- i. Aseptic preparation of explant
- ii. Nutrient media selection
- iii. Incubation of the culture

Q. 2 D State the significance of following instruments/ material in Plant Tissue Culture. 07

- i. Microtome
- ii. Vacuum pump
- iii. Laminar air flow
- iv. Membrane filtration system
- v. Autoclave
- vi. Scalpel
- vii. 70% ethanol

Q. 3 A Enlist and explain the advantages of animal tissue culture. 08

Q. 3 B Discuss the principle, working and applications of Hot Air Oven. 07

OR

Q. 3 C Explain how you would establish a primary cell culture. 08

Q. 3 D Illustrate the growth kinetics of a typical animal cell culture. 07

Q. 4 A What is communication? Enlist and explain the elements of the communication process. 08

Q. 4 B Discuss the process of scientific writing. 07

OR

Q. 4 C Read the following abstract and answer the following questions 08

Abstract:- The antimicrobial potential of seven extracts from four plants was screened against eight bacteria and two pathogenic fungi, using microbroth dilution assay. Lowest concentration of the extract, which

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inhibits any visual microbial growth after treatment with p-iodonitroterazolium violet, was considered to be minimum inhibitory concentration (MIC). Water extracts of *Acacia nilotica*, *Justicia zelanica*, *Lantana camara* and *Saraca asoca* exhibited good activity against all the bacteria tested and the MIC was recorded in range of 9.375–37.5 µg/ml and 75.0–300.0 µg/ml against the bacterial and fungal pathogens, respectively.

- i. Suggest a suitable title to the research work.
- ii. Which are the four plant extracts used for study? Which test cultures were used for the research work?
- iii. What is the method used for study? What was the result of the study?
- iv. Give four key words for the research work based on the abstract.

Q. 4 D What is plagiarism? Give an example? How would you avoid plagiarism 07

Q. 5 Write Short notes on **any three** of the following 15

- a. Totipotency and Cell theory.
- b. Auxins in plant tissue culture media.
- c. Serum.
- d. Trypsinization.
- e. Non verbal communication.