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UG/II/BIOT/H/IV/17(New)

2017

**BIOTECHNOLOGY**

[ Honours ]

PAPER – IV

*Full Marks : 90*

*Time : 4 hours*

*The figures in the right hand margin indicate marks  
Candidates are required to give their answers in their  
own words as far as practicable*

*Illustrate the answers wherever necessary*

[ NEW SYLLABUS ]

GROUP – A

Answer any two of the following questions : 15 × 2

1. (a) Write down the mechanism of Vernalization in plants.

( Turn Over )

- (b) How haploid cultures developed in the laboratory ?
- (c) Write down utility of male sterility in plant breeding.  $4 + 6 + 5$
2. (a) Write down role of ABA on plant growth.
- (b) What is Kranz anatomy ? Write down advancement of  $C_4$  plants over  $C_3$  plants.
- (c) Write down process of layering in plants.  $4 + (2 + 4) + 5$
3. (a) What is phytoremediation ? Write down the process of removal of heavy metal by micro-organisms from affected sites.
- (b) What are Xenobiotic components ? Write a note on degradation of Xenobiotics by microorganisms.
- (c) Write a note on flow of energy in an ecosystem.  $(2 + 3) + (1 + 4) + 5$

( 3 )

4. (a) How fed batch process of fermentation differs from continuous process ?
- (b) Write down production process of an antibiotic you have studied.
- (c) Draw and discuss different parts of a table top bioreactor. 4 + 6 + 5

GROUP – B

Answer any five questions from of the following : 8 × 5

5. What are different types of plant tissue culture media used ? How somatic hybridization is generally done in laboratory. 2 + 6
6. Write down the utility of seed bank. How agrobacterium mediated genetransfer is done ? 2 + 6
7. Write down different steps for municipal waste water treatment. 8

( 4 )

8. Write down process of ex-situ conservation of biodiversity. 2 + 6
9. Explain utilities and production process of citric acid. 2 + 6
10. Draw and describe double fertilization process in plants. 8
11. Mention process for baker's yeast production. What are different application of baker's yeast in industry. 5 + 3
12. What is Bt cotton ? How Bt toxin works on Lepidopteran insects. 2 + 6

GROUP – C

Answer any five questions from of the following :

4 x 5

13. How Rheology affects fermentation process ? 4
14. Write down different applications of amylases. 4

( 5 )

15. What is cryopreservation ? Mention its utility. 2 + 2
16. Mention different types of polyploidy developed in plants. 4
17. Add a note on agricultural applications of cytokinens. 2 + 2
18. Write short note on clinical application of biosensor. 4
19. What is whole cell immobilization ? Mention its utility. 2 + 2
20. What is ecological succession ? Why it is important ? 2 + 2
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