

Total Pages--6

UG/II/MICB/H/IV/18 (New)

2018

MICROBIOLOGY

[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** questions, taking at least

one from each Subgroup : 15×2

Subgroup – A (a)

1. (a) What is an antibody? Describe the diversified mode of reaction of antibody.

(Turn Over)

- (b) How does macrophage kill bacteria through oxygen-dependent and oxygen-independent pathways.
- (c) Write the clonal selection theory for antibody production. (1 + 4) + 7 + 3

2. (a) Name the causative agents for pneumonia and meningitis ?
- (b) What is tuberculin ? Write the basic mechanism of pathogenecity of *M. tuberculosis* infection.
- (c) Why are nosocomial infections so important to human ?
- (d) What is amoebiasis ? Write down the basic mechanism of amoebiasis.
(2 + 2) + (2 + 4) + 2 + (1 + 2)

Subgroup – A (b)

3. (a) What are natural killer cells ? How do they play the defense against tumor cells ?
- (b) How does interferon act against viral infection ?

(3)

- (c) Write down the character of an ideal antigen.
- (d) Write a note on complement fixation test. (1 + 3) + 4 + 4 + 3
4. (a) Why bacterial cells become multidrug resistant ?
- (b) What is generation of antibiotics ? Write down the generation of antibiotics with example.
- (c) What is BCG vaccine ?
- (d) Classify antibiotics and briefly describe each type with example. 3 + (1 + 3) + 2 + 6

GROUP – B

Answer any five questions, taking at least
two from each Subgroup : 8 × 5

Subgroup – B (a)

5. (a) Write down the steps involved in commercial sterilization process.
- (b) Which microorganisms are responsible for the spoilage of bread, pasteurized milk and fish. 5 + 3

6. (a) What are food preservatives ? Classify the preservatives with advantage and disadvantage.
- (b) Write down two main functions of nitrites as preservative. $(2 + 2 + 2) + 2$
7. (a) Describe the methods of pasteurization.
- (b) Write down the advantages and disadvantages of pasteurization.
- (c) 'Pasteurized milk is sterile or not' – explain. $5 + 2 + 1$
8. (a) Write down the clinical uses of monoclonal antibodies.
- (b) Write the immunologic basis of grafting. $4 + 4$

Subgroup – B (b)

9. (a) What is hybridoma ? Write down the importance of 'HAT' media for the selection of hybridoma.
- (b) What is T_H cell ? Write down its importance. $(1 + 4) + (1 + 2)$

10. (a) What is bioreactor ? Give two characteristics of secondary metabolites.
- (b) What is scale up ? Briefly describe the scale up. $(1 + 2) + (1 + 4)$
11. (a) Write the advantages and disadvantages of quick and slow freezing of any food materials.
- (b) What is homo and heterotype fermentation ? Give example. $4 + 4$
12. (a) Differentiate between acetic acid and vinegar. Also describe the production of vinegar.
- (b) What is fed batch fermentor ? $(2 + 4) + 2$

GROUP – C

Answer any **five** questions, taking at least

two from each Subgroup :

4×5

Subgroup – C (a)

13. Write down the mechanism of inflammation. 4

14. How do skin and mucous membrane act as first line defense ? 4
15. Give a brief description of autoimmune disease. 1 + 3
16. Write down the non-thermal process of food preservation. 4

Subgroup – C (b)

17. Give some example of antiprotozoan drug with mode of action. 4
18. Write down the applications of polymyxin and gresiofulvin. 4
19. What is dual fermentation ? Give example. 2 + 2
20. What is probiotics ? Write down its characteristics. 1 + 3
-