

2016

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

[OLD SYLLABUS]

GROUP – A

Answer any two questions, taking at least
one question from each Subgroups : 15 × 2

Subgroup – A(a)

1. (a) What is hypersensitivity? Classify the hypersensitivity and describe each type. 2 + 8

(Turn Over)

- (b) Briefly describe the activation mechanism of classic pathway of complement system. 5
2. (a) What is antigen? Briefly describe the property of antigen. 1 + 4
- (b) Describe the role of phagocytes in body defense. 4
- (c) Discuss the role of humoral immunity for extracellular elimination of pathogen. 4
- (d) Write the methods of RIA. 2

Subgroup – A(b)

3. (a) What is Canned food? How is it prepared? How does the contamination of canned food occurred? 2 + 6
- (b) Give some example of bacteria—responsible for the spoilage of meat and vegetables. 7
4. (a) Why foam is produced during fermentation? Write its problem and prevention. 2 + 2
- (b) Differentiate between exotoxin and endotoxin. 3

- (c) Differentiate between upstream processing and down stream processing. 4
- (d) Differentiate between Beer and Wine. 4

GROUP – B

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

Subgroup – B(a)

5. (a) Describe the modern strategies used for the treatment of AIDS. 4
- (b) Write a short note on malaria. 4
6. (a) Give diagnosis of any two of the following : 2 × 2
- (i) Enteric fever
- (ii) Influenza
- (iii) Cholera.
- (b) Write down the name of two anti-viral compounds and outline their mode of action. 2 + 2

7. (a) What is complete Freund's Adjuvant? Describe its composition. How does it enhance the immune response? 1 + 1 + 3
- (b) Explain digestion of an antibody molecule by the enzyme pepsin. 3
8. (a) Differentiate between : $2\frac{1}{2} \times 2$
- (i) B cell and T cell activation
- (ii) Pro and anti inflammatory cytokines.
- (b) Write a short note on abnormal immunoglobulin. 3
- Subgroup – B(b)
9. (a) Briefly describe the production of Penicillin. 5
- (b) Why semisynthetic penicillin is more superior than natural penicillin? 3
10. (a) Briefly discuss the different methods of solar drying of food article. 3
- (b) Write down the principle of food preservation. 3

- (c) Raw milk is sterile or not – explain. 2
11. (a) Write the symptoms, foods involved and preventive measures of shigellosis. 6
- (b) Write the full form of HACCP, GRAS, CAC, FDA. $\frac{1}{2} \times 4$
12. (a) What is continuous fermentation? Give its application. $1\frac{1}{2} + 1\frac{1}{2}$
- (b) Why is the operating volume of a fermenter always less than its total capacity? $2\frac{1}{2}$
- (c) Why is it essential to prevent vortex fermentation in a bioreactor? $2\frac{1}{2}$

GROUP – C

Answer any five questions, taking at least two questions from each Subgroups : 4 × 5

Subgroup – C(a)

13. Write a short note on pathogenesis by *Entamoeba histolytica*. 4

14. Write a short note on haptan. 4
15. Distinguish between monoclonal and polyclonal antibodies. 3 + 1
16. Write the chemical nature and mechanism of action of chloramphenicol. 2 + 2

Subgroup – C(b)

17. Write a short note on probiotics.
18. Write a short note on Traveler's Diarrhea. 4
19. Write a short note on endotoxin. 4
20. Briefly describe the process of cheese production from milk. 4