6/H-64 (vii) (Syllabus-2015)

2018

(April)

BIO-CHEMISTRY

(Honours)

(Microbiology and Immunology)

Marks : 56

Time : 3 hours

The figures in the margin indicate full marks for the questions

Answer **four** questions, taking **two** from each Part

PART—A

(Microbiology)

1. *(a)* Draw a bacterial growth curve indicating the various phases. Define balanced and unbalanced growth. 2+2=4

(b) Explain why bacterial populations enter into stationary phase in a batch culture. 4

(c) Explain the effect of pH and temperature on bacterial growth. 6

2. (a) What is a culture media? Describe the use of selective media in cultivation of bacterial cultures. 1+5

(b) Describe the role of microorganisms in food spoilage.

3. (a) What is bacterial conjugation? How was it discovered?

(b) Describe how $F^+ \times F^-$ conjugation process takes place in bacteria with the help of suitable diagrams. 6+8=

PART—B

(Immunology)

4. (a) What are haematopoietic stem cells? Describe the origin and role of myeloid and lymphoid progenitor cells. 1+6

(b) Describe the role of dendritic cells, macrophages and T-cells in immunity.

5. (a) What is inflammation? Describe the inflammatory reactions commonly observed during innate immunity. 1+6

(b) How does antigen-antibody interaction take place during specific immunity?

(Continued

6. (a) Explain the following : 2×4=8

(i) Adjuvants

(ii) Haptens

(iii) Antigens

(iv) Immunogens

(b) Describe urticaria and anaphylactic shock. 3+3=6

7. What is immunological memory? Describe the mechanisms of immunity that possess immunological memory. 3+11=14

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