4. (a) Differentiate between primary and secondary lymphoid organs. Write a note on structure and function of Lymph Node.

(b) Briefly discuss major types of vaccines with appropriate examples. (6,6)

5. (a) Describe the formation of MAC through classical pathway of complement activation.

(b) What is a hapten? Describe the factors which determine immunogenicity. (6,6)

6. (a) Illustrate and discuss the cytosolic pathway for processing antigen.

(b) How Clonal Selection theory justifies the four cardinal features of adaptive immune response? (6,6)

7. Write short notes : **(Any Three)**

(a) Innate Immune barriers

(b) Immunodeficiency

(c) Cytokines

(d) Antigen- Antibody interaction as tools in Research and diagnosis (4×3)

(1500)

[This question paper contains 4 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1265 **C**

Unique Paper Code : 32237909

Name of the Paper : Immunology

Name of the Course : **B.Sc. (H) Zoology**

Semester : V (CBCS)

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **Five** questions in all. Question No. **1** is compulsory.
3. Attempt **all** the parts of a question together.

1. (a) Define :

(i) Opsonin

(ii) Avidity

(iii) Adjuvant

(iv) Anaphylatoxin

(v) Hematopoiesis (1×5)

P.T.O.

(b) Differentiate between the following :

(i) Active and Passive Immunity

(ii) Primary and Secondary Immune response

(iii) Exogenous and Endogenous antigens

(iv) Polyclonal and Monoclonal Sera

(v) Innate and Adaptive Immunity (2×5)

(c) Write the contribution/s of the following scientists :

(i) Cesar Milstein and Georges E. Köhler

(ii) Jules Bordet (1×2)

(d) Expand the following :

(i) HLA

(ii) GM-CSF

(iii) ADCC

(iv) MAC

(v) RIA

(vi) CDR (1/2×6)

(e) Write the immunological significance of the following

(i) Interferons

(ii) Bursa of Fabricius

(iii) CLIP

(iv) Rheumatoid Factor (1×4)

(f) Give reasons :

(i) Burn victims are more prone to infections.

(ii) IgA survives the proteolytic degradation in GI tract.

(iii) Self antigens do not produce immune response in normal persons. (1×3)

2. (a) Describe the basic structure of an antibody. How was the structure of antibody deduced.

(b) Differentiate between T cell and B cell epitopes. (8,4)

3. (a) Describe Gell and Coomb's classification of hypersensitivity with suitable examples.

(b) Describe the process of Hematopoiesis with a diagram with examples from myeloid and lymphoid lineages. (6,6)

P.T.O.