

This question paper contains 4 printed pages]

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S. No. of Question Paper : 1702

Unique Paper Code : 2492014801

Name of the Paper : Advanced Immunology

Name of the Course : B.Sc. (Hons.) Biochemistry

Semester : VIII (NEP)

Duration : 2 Hours

Maximum Marks : 60

(Write your Roll No. on the top immediately on receipt of this question paper.)

There are 6 questions.

Attempt 4 questions in all.

All questions carry equal marks.

Question No. 1 is compulsory.

1. Write true and false for the following statements (correct the false statement) :

- (i) Anergy is a state where immune cell is alive but cannot respond to an antigen.
- (ii) Type 2 Diabetes is an autoimmune disease.
- (iii) Antihistamine is a common treatment used for type III hypersensitivity.

P.T.O.

- (iv) Allograft rejection displays memory.
- (v) Monoclonal antibodies recognize multiple epitopes on a target protein.
- (vi) Immunosuppressive drugs are used in tissue transplantation.
- (vii) HIV spreads through saliva.
- (viii) MHC have no role in graft rejection.
- (ix) Allergy to penicillin is an example of Type II hypersensitivity.
- (x) DNA vaccine induce response to a single epitope only. 1.5×10=15

2. (a) Give reasons for the following :

- (i) Impaired clearance of immune complexes results in the autoimmune diseases.
 - (ii) For protection against Tetanus booster doses of vaccines are required.
 - (iii) Xenografts mount stronger rejection than autografts.
 - (iv) AIDS is a secondary immunodeficiency disease.
 - (v) RAG-1/RAG-2 deficiency leads to development of SCID.
 - (vi) Antibodies play an important role in regulation of immune response.
- (b) Describe the mechanism responsible for hyperacute rejection of an allograft. 2×6=12,3

3. Differentiate between the following :
- (i) Chimeric and Heteroconjugate antibodies.
 - (ii) Inactivated and Attenuated Vaccine.
 - (iii) Type 1 and Type 2 Hypersensitivity.
 - (iv) Central and Peripheral Tolerance.
 - (v) Hyper-IgM syndrome and X-linked Agammaglobulinaemia. 3×5=15
4. (a) How does cytokine production by Th1 and Th2 cells help in regulation of immune response ?
- (b) What is Hybridoma Technology ? Explain the role of HAT medium in monoclonal antibody production. Discuss the therapeutic applications of monoclonal antibodies.
- (c) Explain the mechanism underlying antibody-mediated cytotoxic Hypersensitivity with the help of suitable example. 5,5,5
5. (a) What are recombinant vaccines ? Explain with a suitable example.
- (b) Discuss briefly the sequence of events involved in development of allergic reactions.
- (c) Describe briefly the clinical course of HIV infection. 5,5,5

6. Write short notes on :

5,5,5

(i) Graft *vs* Host Disease

(ii) Severe Combined Immunodeficiency (SCID)

(iii) Systemic Lupus Erythematosus.