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S. No. of Question Paper : 1359

Unique Paper Code : 2531501

F-7

Name of the Paper : Immunology

Name of the Course : B.Sc. (H) Microbiology (Erstwhile FYUP)

Semester : V

Duration : 3 Hours

Maximum Marks : 75

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

Attempt any *five* questions.

All questions carry equal marks.

1. (a) Differentiate between the following (any *three*) :

3×4=12

(i) T dependent and T independent antigens

(ii) Innate and adaptive immunity

(iii) B cell and T cell epitope

(iv) Class I and Class II MHC molecules.

(b) Explain the HAT selection for monoclonal antibodies.

Or

Explain the papain and pepsin digestion of antibody molecule.

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P.T.O.

2. (a) Write the functions of the following (any *four*) : 4×2=8
- (i) M cell
 - (ii) CTLA-4
 - (iii) Stromal cells
 - (iv) Basophils
 - (v) C3a or C5a.
- (b) Explain the process of antigen processing and presentation of exogenous antigens. 3+4=7
3. (a) Define the following terms (any *three*) : 3×2=6
- (i) Myeloma
 - (ii) Opsonization
 - (iii) Anaphylaxis
 - (iv) Hypervariable region of antibodies.
- (b) Explain the formation of CTLs and describe the destruction of target cells by CTLs. 4+5=9
4. (a) Give one word for the following :
- (i) Macrophages found in kidneys
 - (ii) Antigen binding site on antibody
 - (iii) Light chain secreted in urine of Myeloma patients

- (iv) Secretory antibodies
 - (v) Granulocyte providing immunity against parasite infection
 - (vi) Lymphoid organ responsible for clearance of tissue borne antigens
 - (vii) APC which expresses B7 molecule only after its activation.
 - (viii) Name the scientist who confirmed the presence of γ globulin fraction of serum.
 - (ix) Molecules that cannot elicit an immune response of their own.
 - (x) Site of proliferation of B cells in secondary follicles. 10×1=10
- (b) Explain the internal structure of spleen with a suitable diagram. 5
5. (a) Elaborate the following terms (any five) : 5×1=5
- (i) TLR
 - (ii) IEL
 - (iii) GM-CSF
 - (iv) DRID
 - (v) CTL
 - (vi) ICAM.
- (b) Where are complement proteins synthesized ? Describe membrane attack complex (MAC) formation by alternative pathway. 1+5=6
- (c) What is an adjuvant ? Give examples and their effect on immune response. 1+3=4

6. (a) Write short notes on (any two) : 2×4=8

(i) Immunofluorescence

(ii) Antibody structure

(iii) Lymphoid cells.

(b) What is autoimmunity ? What happens in rheumatoid arthritis ?

Or

What is primary immune response ? How is it different from the secondary immune response ? 1½+1½=3

(c) What is immunodeficiency ? Name any *one* immunodeficiency disease.

Or

Compare agglutination and precipitation. 1+1=2

(d) How does the molecular size affect the antigenicity of a substance ? 2