

APR 03 2017

KATHMANDU UNIVERSITY  
End Semester Examination  
March/April, 2017

Marks Scored:

Level : B.Tech.

Course : BIOT 409

Year : IV

Semester: I

Exam Roll No. :

Time : 30 mins.

F. M. : 20

Registration No.:

Date :

SECTION "A"

[10 Q. × 1=10 marks]

Choose the correct answer.

- Rheumatoid arthritis is an \_\_\_\_\_ disease that affects the \_\_\_\_\_.  
 Allergic/ cartilage                       Autoimmune/nerves  
 Autoimmune/ joints                       Immunodeficiency/ muscles
- Which of the following is *NOT* helpful in the diagnosis of AIDS?  
 CD4 number                                       CD8 number  
 serum p24 antigen                               lymph node biopsy
- Which of the following is a poor immunogen?  
 Glycoproteins                                       Whole fungal proteins  
 Antibodies     Glycogen
- \_\_\_\_\_ component found in the human body can serve as a carrier molecule when bound to hapten  
 Red blood cells                                       White blood cells  
 Serum proteins                                       Plasma
- In extreme antigen excess, immune complexes between IgG and a tetravalent antigen have the composition:  
 Ag<sub>1</sub>Ab<sub>4</sub>                       Ag<sub>4</sub>Ab<sub>3</sub>                       Ag<sub>2</sub>Ab<sub>1</sub>                       Ag<sub>2</sub>Ab<sub>7</sub>
- Which of the following antibodies are of most use for the diagnosis of pernicious anemia  
 Anti-parietal cells                                       Anti-thyroid peroxidase  
 Anti-TSH receptor                                       Anti IgG Fc
- In agglutination reactions, the antigen is a \_\_\_\_\_ and in precipitation reactions, the antigen is a \_\_\_\_\_.  
 whole cell/soluble molecule                       soluble molecule/whole cell  
 bacterium/virus                                       protein/carbohydrates
- Which of the following regarding "Natural Antibodies" is *INCORRECT*?  
 They are often autoreactive  
 They are often polyspecific  
 They are often reactive with bacterial carbohydrates  
 They are often high affinity IgG



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Semester: I  
F.M. : 55

SECTION "D"

Attempt ALL questions

- 1.a) Explain the pattern of precipitation curve. [3]  
b) Devise a method to determine whether an athlete has used an illegal drug to enhance his/her performance. [2]
- 2.a) Explain *Erythroblastosis fetalis* as a type II hypersensitive response. [3]  
b) Discuss therapeutic methods for type I hypersensitive response. [2]
- 3.a) Explain the relationship between the incubation period of a pathogen and the approach needed to achieve effective active immunization. [3]  
b) Which polio vaccine (Sabin or Salk) would you recommend for HIV-infected children? Explain the basis for your answer. [2]
- 4.a) Discuss the features of HIV that has made it a difficult drug- target antigen. [3]  
b) Treatments with combinations of anti-HIV drugs (HAART) have reduced virus levels significantly in some treated patients and delayed the onset of AIDS. If an AIDS patient becomes free of opportunistic infection and has no detectable virus in the circulation, can that person be considered cured? Explain. [2]
- 5.a) Elaborate on the role of passenger leukocytes in graft rejection. [3]  
b) Explain the microcytotoxicity method of tissue typing [2]
- 6.a) Write short note on cancer of immune system [3]  
b) What features of tumor associated antigen contribute to the development of cancer? [2]
- 7.a) Explain how molecular mimicry can induce autoimmunity [3]  
b) Explain any one potential therapy for autoimmunity [2]
8. Give *TWO* major differences between *ANY FIVE*. [5 Q.×2=10]  
a) Precipitin and Agglutinin  
b) Antigen and Immunogen  
c) Viral oncogene (v-src) and Cellular oncogene (c-src)  
d) Recombinant vector vaccine and DNA vaccine  
e) Acute graft rejection and Chronic graft rejection  
f) Major histocompatibility complex and Minor histocompatibility complex

9. Explain *WHY/HOW* for *ANY FIVE*

[5 Q.×2=10]

- a) Adjuvant can enhance the immunogenicity of an antigen.
- b) A certain population in Europe lack CCR5 receptor on their cells and are thus immune to HIV infection.
- c) Polio vaccine requires three doses to be effective.
- d) Attenuated vaccine activates cell mediated immune response while killed vaccine activates humoral response only.
- e) Dendritic cells have important role in kidney graft rejection.
- f) In competitive ELISA the level of infection is inversely related to the absorbance obtained.