

ACHOLA-II (CBCS): SUMMER- 2017
SUBJECT: IMMUNOLOGY

Day: Monday
Date: 03/04/2017

Time: 10.00 AM TO 01.00 PM
Max. Marks: 60

N.B:

- 1) **Q. No.1 and Q. No.5 are COMPULSORY.**
- 2) Attempt **ANY TWO** questions from **Q. No. 2, 3 & 4.**
- 3) Attempt **ANY TWO** questions from **Q. No. 6, 7 & 8.**
- 4) Answers to both the sections should be written in **SEPARATE** answer books.

SECTION-I

- Q.1** Answer in brief: (10)
- a) Name the cytokines produced by activated macrophages.
 - b) Expand the terms- PALS and CALT.
 - c) What are super antigens?
 - d) Explain MAC.
 - e) Name 2 attributes of antigenicity.
- Q.2** Answer the following questions: (10)
- a) Give a brief account of structural and functional features of Class-II MHC molecules.
 - b) What is the immuno-regulatory role of cytokines? Explain giving suitable examples.
- Q.3** Answer the following questions: (10)
- a) Describe the structural features of a typical antibody molecule.
 - b) Explain in detail the biological consequences of complement activation.
- Q.4** Write short notes on **ANY TWO** of the following: (10)
- a) Perforins
 - b) ELISA
 - c) Flow cytometry and fluorescence

SECTION-II

- Q.5** State the role of the following: (10)
- a) Reagin antibody.
 - b) IL-7.
 - c) TCR.
 - d) Central tolerance.
 - e) Tumor necrosis factor.
- Q.6** Answer the following: (10)
- a) What is haematopoiesis? Name and state the functions of various blood cells formed from hematopoietic stem cell.
 - b) Explain the role of immunological surveillance.
- Q.7** Write short notes on **ANY TWO** of the following: (10)
- a) Lattice hypothesis
 - b) Type-II hypersensitivity
 - c) Cross-reactivity
- Q.8** Describe the types of autoimmune reactions giving one example of each type. (10)

OR

Give an account of HLA typing methods.

ACHOLA – II (CBS): SUMMER- 2017
SUBJECT : MEDICAL GENETICS

Day : Friday
Date : 07/04/2017

Time : 10.00 AM TO 01.00 PM
Max. Marks : 60

N.B.:

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of remaining questions attempt **ANY TWO** questions from each section.
- 2) Answers to both the sections should be written in **SEPARATE** answer books.
- 3) Figures to the right indicate **FULL** marks.

SECTION – I

- Q.1** Define **ANY FIVE** of the following terms: [10]
a) Barr body.
b) Mendelian trait.
c) Balanced translocation.
d) Rh factor.
e) Tumor suppressor proteins.
f) Pleiotropy.
g) F2 generation.
- Q.2** Attempt the following: [10]
a) Explain the Mendel's law of segregation.
b) Describe epistasis with suitable example.
- Q.3** Attempt the following: [10]
a) Give an account on ABO blood group system.
b) Explain the role of Y chromosome in sex determination.
- Q.4** Write short notes on **ANY TWO** of the following: [10]
a) Klinefelter syndrome
b) X-linked mental retardation
c) Sickle cell anemia

SECTION – II

- Q.5** Attempt **ANY TWO** of the following: [10]
a) What are numerical chromosomal abnormalities? Enlist the genetic disorders caused due to numerical abnormalities.
b) Describe the inborn errors of amino acid metabolism.
c) Explain the phases of cell cycle? How are they controlled?
- Q.6** Attempt the following: [10]
a) What are mitochondrial genetic defects?
b) Give the principle and applications of fluorescent *in situ* hybridization technique.
- Q.7** Attempt the following: [10]
a) What is genetic counseling? What is its significance?
b) Explain the technique of karyotype analysis.
- Q.8** Attempt **ANY ONE** of the following: [10]
a) Describe various types of DNA mutations.
b) Give an account on gene therapy.

ACHOLA – II (CBCS): SUMMER- 2017
SUBJECT: RDNA IN MEDICINE

Day : Monday
Date : 10/04/2017

Time : 10.00 AM TO 01.00 PM
Max. Marks.: 60

N.B.:

- 1) **Q. No. 1 and Q. No. 5 are COMPULSORY.**
- 2) Attempt **ANY TWO** questions from the remaining questions of each Section - I and Section-II.
- 3) Answers to both the sections should be written in the **SEPARATE** answer books.
- 4) Draw neat and labeled diagram **WHEREVER** necessary.

SECTION – I

- Q.1** Briefly explain the principle of following techniques with suitable diagram. **[10]**
- 1) DNase I foot printing
 - 2) Southern hybridization
 - 3) Homopolymer tailing
 - 4) Phage display
 - 5) Restriction mapping
- Q.2** Explain the characteristics features of following vectors (**ANY FOUR**) **[10]**
- a) pUC vectors
 - b) YACs
 - c) M13 mp vectors
 - d) Expression vectors
- Q.3** Explain in detail **[10]**
- 1) cDNA cloning techniques
 - 2) Different techniques for insertion of foreign DNA in to host cells.
- Q.4** Write short notes: **[10]**
- 1) Class II restriction enzymes
 - 2) Inclusion bodies
 - 3) Pichia vector system
 - 4) Immunological screening techniques

SECTION – II

- Q.5** Explain in detail (**ANY TWO**): **[10]**
- 1) Different techniques for gene therapy.
 - 2) Deferential gene expression
 - 3) Transgenic animals.
- Q.6** Explain the principle of following PCR based techniques. **[10]**
- a) Reverse transcriptase PCR
 - b) Hot start PCR
 - c) Real time PCR
 - d) Touch down PCR
 - e) Nested PCR
- Q.7** Write short notes: **[10]**
- a) RFLP
 - b) DGGE
 - c) SOEing
 - d) SSCP
- Q.8** Explain in detail with suitable diagram (**ANY TWO**): **[10]**
- 1) Different techniques of site directed mutagenesis.
 - 2) Enzymatic DNA sequencing. Add a note on automated sequencing.
 - 3) si RNA technology.

ACHOLA – II (CBCS) : SUMMER- 2017
SUBJECT : INFECTIOUS DISEASES

Day : Wednesday
Date : 12/04/2017

Time : 10.00 AM TO 01.00 PM
Max. Marks : 60

N.B.

- 1) **Q.1 and Q.5 are COMPULSORY.** Attempt any **TWO** questions from **Q.2, 3,4** and any **TWO** questions from **Q.6,7,8.**
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.
- 4) Draw neat diagrams **WHEREVER** necessary.

SECTION – I

- Q.1** Answer any **FIVE** of the following: (10)
- a) Lepromin test
 - b) DPT vaccine
 - c) Cold agglutination test
 - d) Food born Botulism
 - e) Quellung reaction
 - f) Weil Felix test
- Q.2** Answer the following: (10)
- a) Diagnosis of Meningococcal meningitis.
 - b) Diagnosis of Urinary tract infection.
- Q.3** Describe the morphology, cultivation, biochemical reactions and pathogenesis of *Vibrio cholerae*. Explain the diagnosis of a case of Cholera. (10)
- Q.4** Write short notes on: (10)
- a) Diagnosis of Whooping cough
 - b) Serological diagnosis of Syphilis

SECTION – II

- Q.5** Answer any **FIVE** of the following: (10)
- a) Polio vaccine
 - b) Cysticercosis
 - c) Diagnosis of filariasis
 - d) Structure of Influenza virus
 - e) Viral inclusion bodies
 - f) *Trichuris trichiura*
- Q.6** Briefly describe the following: (10)
- a) Pathogenesis and diagnosis of *Candida albicans*.
 - b) Pathogenesis and diagnosis of Mumps virus infection.
- Q.7** Describe morphology, life cycle and pathogenesis of *Ancylostoma duodenale*. Add a note on its laboratory diagnosis (10)
- Q.8** Briefly describe (10)
- a) Diagnosis of hydatid disease.
 - b) Diagnosis of AIDS