2017

BOTANY

Paper : 402

MICROBIOLOGY-II

Full Marks: 80

Time: 3 hours

The figures in the margin indicate full marks for the questions

I. Answer the following MCQs: (All questions are compulsory) 1x6=6

1. Which of the following vectors are extensively used in human genome project
   a. Plasmid vector
   b. Yeast artificial chromosome
   c. Cosmid vector
   d. Both a and b
2. The first antibody to contact invading micro-organisms is
   a. IgG
   b. IgA
   c. IgM
   d. IgD
3. Tear drops are rich in
   a. Amylase
   b. Phosphatase
   c. Lysozyme

d. Protease

4. Cancer of B lymphocytes are called
   a. Sarcoma
   b. Myeloma
   c. Melanoma
   d. Carcinoma
5. A type of T cell that recognize in class I MHC molecules and thereby destroying the cell on which the antigen is displayed is
   a. T Helper cell
   b. Cytotoxic T cell
   c. Regulatory T cell
   d. Memory T cell
6. Introduction of antisense RNA into a cell can
   a. Increase or over express the corresponding gene
   b. Reduce or prevent the expression of the corresponding gene
   c. Shall have no effect on the expression of the gene
   d. Will destroy RNA

II. Answer the following short questions: (Any five) 3x5=15

1. DNA methylation
2. Proteomics
3. Cytokines
4. Enhancers
5. Apoptosis
6. Membrane attack complex

P.T.O.

III. Write explanatory notes: (Any four) 5x4=20

1. Artificial chromosomes and their applications
2. Application of Hybridoma technology
3. Polymerase chain reaction
4. Autoimmune diseases
5. RNA splicing

IV. Answer the following questions: (Any three) 3x9=27

1. What is catabolic repression? How is *Lac*-operon operated and regulated by *lac* repressor and CAP (Catabolic activator protein)? (4.5+4.5=9)
2. What is attenuation? What are the functions of leader sequence in attenuation in *tryp Operon*? (3+6=9)
3. Compare between the transcription of Eukaryotic and Prokaryotic organisms. Write a brief note on transcription factors that are active during transcription in Eukaryotic cells. (5+4=9)
4. Discuss the role of microbial biotechnology for human welfare. (9)
5. What are the different types of granulolytic cells of immune system? Write their functions. Distinguish between T-cells and B-cells. (3+6=9)

V. Answer the following question : (Any one) 12x1=12

1. Explain in detail about the structure of antibody. Write a concise account on mode of action of antibodies. (6+6=12)

P.T.O.

2. What is cancer? What are the hallmarks that characterize cancer cells? What are the factors that bring about transformation of proto-oncogenes to oncogenes. Explain the control of tumor suppressor gene with reference to P^{53}. (1+3+4+4=12)

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