

Seat No. : \_\_\_\_\_

**SI-121**

**September-2020**

**B.Sc., Sem.-VI**

**CC-307 : Biotechnology  
(Health Biotechnology)**

**Time : 2 Hours]**

**[Max. Marks : 50**

- Instructions :** (1) Draw figures where necessary.  
(2) Show question number against each answer.  
(3) Figures to the right indicate marks.  
(4) Answer any **Three** out of initial **Eight** main questions. Question No. **9** is compulsory.

**Section – I**

1. (A) Explain Koch's postulates and write significance in studying infectious disease. **07**  
(B) Describe strategies used to prevent transmission of air-borne infections. **07**  
**OR**
2. (A) Describe molecular mechanism of pathogenesis citing suitable examples. **07**  
(B) Define epidemiology and explain its role in Prevention and Control of disease. **07**
3. (A) Write a note on Western-blotting and give its applications in disease diagnosis. **07**  
(B) How Bioinformatics and Molecular genetics help diagnosing human cancer ? **07**  
**OR**
4. (A) Describe the principle of ELISA and its applications. **07**  
(B) Discuss medicinal importance of therapeutic proteins with suitable examples. **07**
5. (A) What are stem cells ? Describe its types, sources and therapeutic applications in detail. **07**  
(B) Explain principles of Recombinant and DNA vaccines. **07**  
**OR**
6. (A) Explain principle of enzyme replacement therapy with relevant example. **07**  
(B) Define monoclonal antibody and give its medicinal importance. **07**
7. (A) Define Bioterrorism. Explain human pathogens misused for Bioterrorism and global threats giving examples. **07**  
(B) Describe pathogenesis of AIDS virus and challenges posed in its control. **07**  
**OR**
8. (A) Discuss causes and symptoms of Cystic fibrosis. **07**  
(B) Write short note on pathogenesis of cancer. **07**

## Section – II

9. Answer in Short (any **Eight**) :
- 08
- A. What are Endotoxins ?
- B. Who gave the term Epidemiology ?  
(a) John M. Last (b) Robert Koch  
(c) Gregor John Mendel (d) Karry Mullis
- C. What are the four types of infectious diseases ?
- D. Match the terms on Pathogenesis and Description :  
(a) Pathogenesis - Widespread occurrence of infectious disease in population  
(b) Prevalence - Ability of pathogen to spread in the tissue  
(c) Epidemic - Ability of microorganism to cause disease  
(d) Invasiveness - Recurrence of disease
- E. Give two examples of human pathogenic bacteria.
- F. List three measure to control mosquito transmitting malaria.
- G. Write principle of RIA.
- H. Define DNA probes.
- I. RFLP technique is used in:  
(a) Paternity detection (b) Vaccination  
(c) Genome sequencing (d) Proteomics
- J. Define HLA typing.
- K. Explain DNA fingerprinting with example.
- L. Match Technique or Marker and its importance  
(a) PCR - Amplification of desired DNA molecule  
(b) Oncogene - Forensic Science  
(c) HLA matching - Used in Organ transplantation  
(d) DNA fingerprinting - Gene which is responsible for cancer
- M. What are oncogenes and proto-oncogene ?
- N. What is biotechnological source of insulin for human use ?
- O. Give two examples of successful recombinant vaccine.
- P. Which hormone level decreases in Turner Syndrome ?  
(a) HGH (b) TPA  
(c) EPO (d) Stem Cells
- Q. How growth hormone can cause diseased condition ?
- R. Give full form of AIDS and name the pathogen.
- S. Name any one scientific name for malaria pathogen.
- T. What is function of tumour suppressor gene ?
- U. Name two pathogenic threats that emerged in the recent past.
- V. What are symptoms of Sickle-cell anaemia ?