

**MASTER OF SCIENCE (MEDICAL BIOTECHNOLOGY) (CBCS-2018 COURSE)**  
**M.Sc. (Medical Biotechnology) Sem-III : WINTER :- 2021**  
**SUBJECT: PHARMACEUTICAL BIOTECHNOLOGY & MOLECULAR**  
**DIAGNOSTICS**

Day : Monday  
Date 31-01-2022

W-20237-2021

Time : 10:00 AM-01:00 PM  
Max. Marks: 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Answer to the both sections should be written in **SAME** answer book.
- 3) Figures to the right indicate **FULL** marks.
- 4) Draw neat and labelled diagrams wherever necessary.

**SECTION-I**

- Q.1** Answer **ANY FIVE** of the following: **(10)**
- a) Define MIC of any antibacterial compound.
  - b) Briefly explain mechanism of action of antifungal drugs.
  - c) What is attenuation? Enlist the methods used for it.
  - d) Enlist advantages and limitations of subunit vaccines.
  - e) Briefly describe a method to determine potency of live bacterial vaccine.
  - f) State the principle of microencapsulation technique.
- Q.2** Answer **ANY TWO** of the following: **(10)**
- a) Explain in detail different mechanisms of multiple drug resistance in microorganisms.
  - b) State the significance of cloning antibiotic biosynthesis genes with suitable example.
  - c) Explain in detail mechanism of action of chemotherapeutic agents that inhibit protein synthesis in bacteria.
- Q.3** Write short Notes on **ANY TWO**: **(10)**
- a) Vector vaccines
  - b) Hollow fiber bioreactor systems
  - c) Sterility testing methods

**SECTION-II**

- Q.4** Answer **ANY FIVE** of the following: **(10)**
- a) State the principle of indirect ELISA technique.
  - b) Enlist the therapeutic applications of DNase I
  - c) State the significance of green fluorescent protein in molecular diagnostics.
  - d) Enlist four targets of diagnostic monoclonal Abs.
  - e) Write the steps involved in nucleic acid hybridization technique
  - f) State the applications of DNA fingerprinting technique.
- Q.5** Answer **ANY TWO** of the following: **(10)**
- a) What are microbial biosensors? Explain their application in testing for steroid-like activity.
  - b) Explain the principle of *in-vivo* gene therapy add a note on non-viral vectors in gene therapy.
  - c) With the help of suitable diagram explain the techniques used in molecular diagnosis of sickle cell anemia.
- Q.6** Write short Notes on **ANY TWO**: **(10)**
- a) Chemically linked monoclonal antibodies
  - b) Synthesis of recombinant human growth hormone.
  - c) Interferon gene shuffling.

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