

Roll No. ....

Total Pages : 3

**MDE/D-23**

**4402**

## **BIOCHEMISTRY & BIO-TECHNIQUES**

Paper–MZ–102

Time allowed : 3 Hours]

[Maximum Marks : 80

**Note :** Attempt **five** questions in all, selecting **one** question from each unit. Question No. **1** is compulsory. All questions carry equal marks.

### **Compulsory Question**

1. Explain the following: 8×2=16
- (a) Oxidative phosphorylation
  - (b) Functions of mRNA
  - (c) Precursor of cholesterol biosynthesis
  - (d) Significance of HMP pathway as alternate pathway
  - (e) Stokes Shift
  - (f) Bioluminescence-based detection of ATP for cell proliferation test.
  - (g) Affinity adsorption
  - (h) Radioactive decay.

### **UNIT-I**

2. (a) Explain induced fit and Molecular mechanism of enzyme action. 8

**4402/K/281/150**

**P.T.O.**

- (b) Explain the tertiary structure of proteins giving suitable examples. 8

3. (a) Write a short note on reverse turn of Ramachandran plot and state its significance. 8
- (b) Explain the salient features of B-DNA. State the significance of major and Minor grooves. 8

### **UNIT-II**

4. (a) Explain the regulatory steps of Glycolysis. 8
- (b) Explain in detail the role of cholesterol in steroid genesis. 8
5. Write short notes on the following:
- (a) Bile acids and their metabolism. 8
  - (b) Unsaturated fatty acids and their metabolism. 8

### **UNIT-III**

6. (a) Explain the principle and Instrumentation of Scanning Electron Microscope. 8
- (b) Which microscope is preferably used to study living cells and tissues? Write the Instrumentation principle of working of this microscope. 8
7. (a) Enlist the components of Atomic absorption spectrophotometer. Explain its principle and applications. Also write the significance of graphite furnace in AAS. 8
- (b) Explain briefly the basic design and functioning of tissue culture laboratory. 8

**4402/K/281/150**

**2**

#### UNIT-IV

8. (a) Explain method and significance of organelle separation technique by density gravity centrifugation. 8
- (b) Describe Fluorescence-activated cell sorting (FACS) technique for cell separation. 8
9. Explain the following: 2×8=16
- (a) Autoradiography
- (b) Biosensors.