

**MASTER OF SCIENCE (BIOTECHNOLOGY) (CBCS-2018 COURSE)**  
**M.Sc.(Biotechnology) Sem - I : WINTER :- 2021**  
**SUBJECT: BIOCHEMISTRY**

**Day : Thursday**  
**Date 3/2/2022**

**W-19738-2021**

**Time : 02:00 PM-05:00 PM**  
**Max. Marks: 60**

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**N.B.:**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the right indicate **FULL** marks.
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**SECTION-I**

- Q.1** Attempt **ANY FIVE** of the following: **(10)**
- a) Give examples of two basic amino acids with their structures.
  - b) Draw the structure of lactose and sucrose. Are these reducing or non-reducing sugars?
  - c) Distinguish between purines and pyrimidines.
  - d) Enlist the enzymes of urea cycle.
  - e) Write a note on membrane lipids.
  - f) What is malto-dextrin? Give two important uses.
  - g) What do you understand by photophosphorylation?
- Q.2** Attempt **ANY TWO** of the following: **(10)**
- a) Explain what happens to pyruvate in anaerobic conditions.
  - b) What is the fate of amino acids generated after protein digestion?
  - c) What is substrate level phosphorylation? Explain with suitable reaction.
- Q.3** Write short notes on **ANY TWO** of the following: **(10)**
- a) Calvin cycle
  - b)  $\beta$ -oxidation of unsaturated fatty acid
  - c) Gluconeogenesis

**SECTION-II**

- Q.4** Attempt **ANY FIVE** of the following: **(10)**
- a) What are apo-enzymes?
  - b) Enlist the key steps of meat tenderization
  - c) What is enzyme cross linking and what are its advantages?
  - d) Describe briefly-principle of 2D-PAGE technique.
  - e) Write a note on metal activated enzymes.
  - f) What are allosteric enzymes? Explain giving an example.
  - g) What is invert sugar? Give two applications.
- Q.5** Attempt **ANY TWO** of the following: **(10)**
- a) What is papain? What is its mode of action?
  - b) Discuss the application of amylase and cellulase.
  - c) Principle and method of paper chromatography.
- Q.6** Write short notes on **ANY TWO** of the following: **(10)**
- a) Environment friendly strategies for leather processing
  - b) Affinity chromatography
  - c) Proteases and Rennet as enzymes for dairy products