



**BBC-003-001318**

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

**B. Sc. (Sem. III) (CBCS) Examination**

**July - 2021**

**BT - 301 : Basic Aspects of Cellular Metabolism**

**Faculty Code : 003**

**Subject Code : 001318**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

1 Answer the following question in one word : **20**

- (1) Phenylketonuria results in the decreased metabolism of \_\_\_\_\_ amino acids
- (2) The complete oxidation of odd chain fatty acid produces \_\_\_\_\_
- (3) Carbon dioxide fixation occurs in the \_\_\_\_\_ of chloroplast
- (4) Enzymes are polymers of \_\_\_\_\_
- (5) The process of making glucose when cells are grown on other sources (like amino acids) is called \_\_\_\_\_
- (6) Protein assisting other proteins in protein folding is \_\_\_\_\_
- (7) End product of aerobic respiration is \_\_\_\_\_
- (8) In what form does the product of glycolysis enter the TCA cycle
- (9) Lock and key theory was proposed by \_\_\_\_\_
- (10) What is the immediate source of energy for active transportation
- (11) Uncatalyzed reaction requires \_\_\_\_\_ activation energy
- (12) TCA cycle takes place in \_\_\_\_\_ of cell
- (13) During electron transport, protons are pumped out of the mitochondrion at each of the complex except for \_\_\_\_\_
- (14) Maple syrup urine disease is a disorder of \_\_\_\_\_ metabolism

- (15) Full form of RUBISCO is
- (16) Cell membrane is mainly made of phospholipid and \_\_\_\_\_
- (17) Deamination is removal of \_\_\_\_\_ group
- (18) Enzymes acts as a \_\_\_\_\_ in the biochemical reaction
- (19) Primary structure of protein is formed by \_\_\_\_\_ bond
- (20) \_\_\_\_\_ is the only membrane bound enzyme of TCA cycle

**2 (A) Write any three out of six : 6**

- (1) What is G protein?
- (2) Define metabolism
- (3) What is covalent modification?
- (4) Difference between biocatalyst and chemical catalyst
- (5) What is oxidative deamination?
- (6) What is active transport?

**(B) Write any three out of six : 9**

- (1) Draw the TCA cycle
- (2) Write the nomenclature and classification of enzyme
- (3) What are the types of PDH enzyme
- (4) Explain fluid mosaic model
- (5) What are the methods used to study DNA-Protein interaction?
- (6) Explain induced and lock & key model of enzyme

**(C) Write any two out of five : 10**

- (1) Derive Michaelis Menton equation
- (2) Explain four levels of protein structure
- (3) Explain the role of hormones in the regulation of cellular metabolism
- (4) Explain oxidative phosphorylation mechanism
- (5) Explain bacterial photosynthesis process

- 3 (A) Write any **three** out of six : 6
- (1) What are molecular chaperons?
  - (2) What are accessory pigments of photosynthesis?
  - (3) Define primary and secondary messengers
  - (4) What is C4 cycle?
  - (5) Give an overview of metabolic pathways
  - (6) What is proximity effect?
- (B) Write any **three** out of six : 9
- (1) Pathway of gluconeogenesis
  - (2) Explain the  $\beta$  oxidation of odd chain fatty acid
  - (3) Explain the four complexes of electron transport chain.
  - (4) Explain reversible and irreversible mechanism of regulation
  - (5) Write a note on ATP synthetase
  - (6) What is protein sequencing
- (C) Write any **two** out of five : 10
- (1) Draw and explain urea cycle with its regulation
  - (2) Explain the mechanism of message transfer in cell in detail
  - (3) Explain the process of DNA protein interaction
  - (4) Explain any two disease because of inborn errors of metabolism
  - (5) Explain glycolysis with its regulation
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