18BTP05 / 14BTP10

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2019
(First Semester)

Branch **-BIOTECHNOLOGY**

METABOLIC REGULATION

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 x 1 = 10)

1 Which second messenger signals the release of Ca++ from the endoplasmic reticulum?
(i) Cyclic AMP (ii) Cyclic GMP
(iii) 1. 2 diacyl glycerol (iv) Inositol triphosphate

2 Which of the following enzyme is activated by cyclic AMP,passing on the hormonal signal?
(i) Protein Kinase A (ii) Protein kinase B
(iii) Protein kinase C (iv) G protein receptor kinase

3 The enzyme which is responsible for the splitting of glucose molecules in glycolysis is
(i) Hexokinase (ii) Aldolase
(iii) Phosphoglycerate Mutase (iv) Enolase

4 The allosteric inhibitor of an enzyme
(i) ^ causes the enzyme to work faster (ii) Binds to the active site
(iii) participates in feedback regulation (iv) denaturates the enzyme

5 When pyruvate is converted to Acetyl - CoA, the enzyme which catalyzed this reaction is
(i) Hexokinase (ii) Pyruvate kinase
(iii) Phosphofructokinase-1 (iv) Pyruvate dehydrogenase complex

6 Which of the following statements about the activation of fatty acids is correct?
(i) Fatty acid activation occurs on the inner mitochondrial membrane
(ii) Fatty acid activation is catalysed by carnitine acyl transferase
(iii) Fatty acid activation produces energy in the form of ATP
(iv) Fatty acid activation requires energy in the form of ATP

7 In the normal breakdown of phenylalanine, it is initially degraded to
(i) fumarate (ii) tyrosine
(iii) phenyl pyruvate (iv) lysine -

8 In the first committed step of pyrimidine biosynthesis, the reaction is catalyzed by
(i) Adenylate kinase (ii) Aspartate transcarbamoylase
(iii) Dihyhroorotase (iv) Cytidylate synthase

Cont...

9 Body's central metabolic clearing house, known to be as
(i) brain (ii) liver
(iii) skeletalmuscles (iv) adipose tissues

10 Ammonia' is temporarily stored in form of
(i) Serine (ii) Glutamate
(iii) Glutamine (iv) Valine

SECTION - B (25 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 5 = 25)

11 a Write short notes on AMP dependent protein kinases.

OR

b Explain about the role of Insulin.

12 a What is the hexokinase regulation?

OR

b Role of enzymes in reversible covalent modification.

13 a Write notes on lipogenesis of palmatic acid in fatty acid metabolism.

OR

b Role of acetyl coA carboxylase in fatty acid synthesis and degradation.

14 a Write an essay on Pyrimidine nucleotides.

OR

b Explain about the transamination.

15 a Write short notes on metabolic key junction glucose 6-phosphate.

OR

b Ethanol alerts of energy metabolism in the liver.

SECTION -C (40 Marks)

Answer **ALL** questions
ALL questions carry **EQUAL** Marks (5 x 8 = 40)

16 a Write an essay on energetics of metabolic cycle and its concepts.

OR

b Discuss briefly about the types of metabolism regulation.

17 a Explain in detail about the hormonal regulation of carbohydrate metabolism.

OR

b Write an essay on glycogen metabolism.

18a Discuss briefly about oxidation of fatty acids.

OR

b Explain about the cholesterol biosynthesis.

19 a Explain in detail about the urea cycle and its regulation.

OR

b Describe briefly on oxidative deamination of amino acids and decarboxylation.

20 a Explain in detail on control of metabolism by compartmentation.

OR

b Discuss briefly about the food intake and starvation induces metabolic changes.