



RO-003-1015030

Seat No. _____

**B. Sc. (Biochemistry) (Sem. V) (CBCS)
(W.I.F. 2016) Examination**

February - 2019

BC - 502: Intermediary Metabolism

Faculty Code : 003

Subject Code : 1015030

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

[Total Marks : 70

- 1 (A) Answer the following in brief : 4
(one mark for each question)
- (1) What is physiological importance of 2,3-Bisphosphoglycerate?
 - (2) What is glycogen primer?
 - (3) How many ATP gained from one TCA cycle?
 - (4) Define light reaction of photosynthesis
- (B) Answer in brief : (Any **one** out of two) 2
- (1) What is reaction mechanism of transaldolase in PPP pathway?
 - (2) Differentiate between glucokinase and hexokinase?
- (C) Answer in detail : (Any **one** out of two) 3
- (1) What is gluconeogenesis? Name the enzymes of bypass reaction for gluconeogenesis
 - (2) Discuss the mechanism of Glucose uptake in peripheral tissues
- (D) Write a note on : (Any **one** out of two) 5
- (1) Write the fate of pyruvate in different metabolic condition
 - (2) Write about regulation of TCA cycle

- 2 (A) Answer in brief : (Any **one** out of two) 4
- (1) Write a note on malate-aspartate shuttle
 - (2) Write a note on mitochondrial ATP synthase
- (B) Answer in brief : (Any **one** out of two) 2
- (1) Justify: When FADH_2 enter in ETC gives only 1.5 ATP instead of 2.5 ATP
 - (2) Why cyanide is poisonous to humans and why it doesn't cause instant death?
- (C) Write in detail : (Any **one** out of two) 3
- (1) Describe coupling efficiency and P/O ratio
 - (2) What would happen to ETC if oxidative phosphorylation is uncoupled by using Dinitrophenol?
- (D) Write. a note on : (Any **one** out of two) 5
- (1) Discuss in detail the components of complex III
 - (2) What is uncouplers of ETC and oxidative phosphorylation. Give examples with mode of action
- 3 (A) Answer the following in brief : 4
- (one mark for each question)
- (1) What is carnitine? What is role of carnitine in fatty acid metabolism?
 - (2) What is the product of beta oxidation of odd chain fatty acids? How this product will further oxidize?
 - (3) Give two names of essential fatty acids
 - (4) Give the structure of cholesterol
- (B) Answer in brief : (Any **one** out of two) 2
- (1) Write metabolic fates of Acetyl CoA
 - (2) Why LDL is termed as a bad cholesterol and HDL as good cholesterol?

- (C) Answer in detail : (Any **one** out of two) **3**
- (1) How fatty acids are activated in cytosol to form fatty acyl CoA?
 - (2) Give a brief outline of cholesterol biosynthesis
- (D) Write a note on : (Any **one** out of two) **5**
- (1) Describe the process of beta oxidation of fatty acids
 - (2) Describe the synthesis of Ketone bodies and explain the term ketosis
- 4 (A) Answer the following in brief : **4**
(one mark for each question)
- (1) Give the name of two amino acids which is completely ketogenic
 - (2) Define essential amino acids with examples
 - (3) Write over all net reaction of urea cycle
 - (4) What is the cause of PKU?
- (B) Answer in brief : (Any **one** out of two) **2**
- (1) Which amino acid is a precursor for synthesis of thyroid hormones and adrenalin?
 - (2) Which two reactions of urea cycle occur in mitochondrial matrix?
- (C) Answer in detail : (Any **one** out of two) **3**
- (1) Which two reactions of urea cycle occur in mitochondrial matrix?
 - (2) Describe the Ammonotelic, Ureotelic and Uricotelic organisms with examples
- (D) Write a note on : (Any **one** out of two) **5**
- (1) Describe diagrammatically the entry of different amino acids in TCA cycle
 - (2) Describe the transamination reactions of amino acids with suitable examples

- 5 (A) Answer the following in brief : 4
(one mark for each question)
- (1) A nucleotide is composed of what?
 - (2) Which sugar is present in DNA and RNA?
 - (3) Which enzyme require for conversion of guanine to xanthine?
 - (4) Give any two biological functions of nucleotide
- (B) Answer in brief : (Any **one** out of two) 2
- (1) What is gout? Give its causes
 - (2) What is the different between salvage and de nove pathway in nucleotide metabolism?
- (C) Answer in detail : (Any **one** out of two) 3
- (1) What is the sources of atom in purine ring
 - (2) Conversion of ribonucleic acid to deoxyribonucleic acid
- (D) Write a note on : (Any **one** out of two) 5
- (1) Explain pyrimidine biosynthesis in detail
 - (2) Explain the degradative pathway for purine nucleotide
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