JW-003-001530 Seat No. _____

B. Sc. (Sem. V) (CBCS) Examination

October – 2019

Biochemistry : BC - 502

(Intermediary Metabolism) (Old Course)

Faculty Code : 003

Subject Code : 001530

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

Instructions :

(1) Figures on the right indicate marks.

(2) Draw diagrams wherever necessary.

1 Answer the following in brief : (one mark for each question) **20**

(1) Which tissue cells are insulin dependent for glucose uptake ?

(2) In which form digested lipid enter in to circulation ?

(3) Give the names for three key regulatory enzymes of Gluconeeogenesis.

(4) Give the names of any two precursor amino acids for neurotransmitters.

(5) What is importance of carnitine in fatty acid metabolism ?

(6) What is the reason for having fruity smell from the breath of diabetic patient ?

(7) Give the physiological importance of nucleotide in human body.

(8) Give the name of any two inhibitors of oxidative phosphorylation.

(9) Tryptophan is used for the biosynthesis of which vitamin ?

(10) What is ketoacidosis ?

(11) Which sugar is present in DNA and RNA ?

(12) Give the names of two amino acids which are both glycogenic as well as ketogenic

(13) What is PKU ? Give its causes.

(14) What are the sources of atom in pyrimidine ring ?

(15) What is the site of photosynthesis ?

(16) What is glycogen primer ?

(17) A nucleotide is composed of what ?

(18) Differentiate between aerobic and anaerobic respiration.

(19) What is deamination reaction ?

(20) Which one is the rate limiting enzyme of fatty acid catabolism as well as biosynthesis.

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

1) Why fat and not carbohydrates is major energy storage of our body ?

2) Write down over all net reaction of urea cycle.

3) What is de novo and salvage pathway for nucleotide synthesis ?

4) What do you mean by Lesch-Nyhan syndrome ?

5) Write the role of Complex II in mitochondrial electron transport chain.

6) Why severe diabetes patients are sometimes being confused as alcoholics ?

(B) Answer specifically any three out of six : **9**

1) How alanine, aspartic acid and glutamic acid can be synthesized in our body ?

2) Give a brief outline of cholesterol biosynthesis.

3) Which reactions are control points in glycolysis ?

4) Write the role of brown adipose tissue. How it is involved in preventing obesity ?

5) What is glycogenolysis ? Give its physiological importance.

6) Draw labelled structure of flow of electron through ETC.

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

1) Discuss malate aspartate shuttle.

2) Discuss the beta oxidation of fatty acids.

3) Note on urea cycle.

4) Discuss feeder pathway for glycolysis.

5) Explain the degradative pathway for purine nucleotide.

3 (A) Answer any three out of six : **6**

1) How protein kinase-A plays important role in regulation of glycolysis ?

2) Short note on different pathways for nucleotide synthesis.

3) What is Q-cycle ?

4) What are the metabolic fates of acetyl CoA ?

5) What is the role of Vitamin B-6 in transamination reactions ?

6) Define and give examples of essential amino acids.

(B) Answer specifically any three out of six : **9**

1) Describe ammonotelic, ureotelic and uricotelic organisms with examples.

2) Explain the conversion of pyruvate to lactate in muscle.

3) Describe coupling efficiency and P/O ratio.

4) Discuss glucose alanine cycle.

5) What is anaplerotic reaction ? Discuss with suitable example.

6) How saturated fatty acids are converted into unsaturated fatty acids ?

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

1) Write a detailed not on pentose phosphate pathway.

2) Explain the conversion of IMP to AMP and GMP.

3) Explain biosynthesis of sphingomyelin.

4) Describe the transamination reactions of amino acids with suitable examples.

5) Calculate the ATP synthesis from complete oxidation of palmitic acid.
