Seat Number

* 3 0 0 3 *

W-19

BP 203 -T
Biochemistry
(712203)

P. Pages : 3

Time : Three Hours **Max. Marks : 75**

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Graph or diagram should be drawn with the black ink pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. All questions are compulsory.
5. Figures to the right indicate full marks.

1. Multiple choice questions (MCQs). **20**

1) Which of the following substrates derived from adipose tissues contributes to the gluconeogenesis in mammalian liver?
   a) Alanine b) Glutamate
   c) Glycerol d) Pyruvate

2) The rate determining step of Michaelis Menten kinetics is ---------.
   a) The complex dissociation step to produce products.
   b) The complex formation step
   c) The product formation step
   d) None of the above

3) All of the following compounds are synthesized by transmethylation reactions except ----------.
   a) Choline b) Ethanolamine
   c) Creatine d) Epinephrine

4) Adjacent nucleotides are joined by ----------.
   a) covalent bond b) ionic bond
   c) peptide bond d) phosphodiester bond

5) A fatty acid with 14 carbon atoms will undergo how many cycle of β-oxidation ----------.
   a) 6 b) 7
   c) 4 d) 5

6) The study of energy relationships and conversions in biological systems is called ----------.
   a) Biophysics b) Biotechnology
   c) Bioenergetics d) Microbiology

7) The enthalpy change for a reaction is zero, then ΔG° equals to ----------.
   a) lnk eq.
   b) $T\Delta S^{\circ}$
   c) $-\Delta H^{\circ}$
   d) $-T\Delta S^{\circ}$

8) The steps of glycolysis between glyceraldehyde-3-phosphate and 3-phosphoglycerate involve all of the following except ----------.
   a) ATP synthesis
   b) Oxidation of NADH to NAD^{+}
   c) Catalysis by phosphoglycerate kinase
   d) The formation of 1, 3-bisphosphoglycerate

9) NADPH required for the fatty acid synthesis can be generated from ----------.
   a) HMP pathway
   b) Glycolysis
   c) TCA cycle
   d) All of the above

10) The type of sugar in DMA are ----------.
   a) triose
   b) tetrose
   c) pentose
   d) Hexose

11) The synthesis of all of the following compound except one is deficient in a patient suffering from phenylketonuria ----------.
   a) Melanin
   b) Melatonin
   c) Catecholamines
   d) Thyroid hormone

12) Urea is synthesized in ----------.
   a) Cytoplasm
   b) Mitochondria
   c) Lysosomes
   d) Both cytoplasm and mitochondria

13) The key regulatory enzyme of fatty acid synthesis is ----------.
   a) Acetyl Co-A synthetase
   b) Keto-acyl-synthase
   c) Acetyl CoA-Carboxylase
   d) Thioesterase

14) Which of the following is the primary ketone body ----------.
   a) Acetone
   b) Acetoacetate
   c) β-hydroxy butyrate
   d) Hydroxy-methyl glutarate

15) Proteins are polymer of ----------.
   a) Lα-amino acid
   b) L-β-amino acid
   c) D-α-amino acid
   d) D-β-amino acid

16) Which pyrimidine base contain an amino group at fourth carbon?
   a) Thymine
   b) Adenine
   c) Uracil
   d) Cytosine

17) Which of the following is not an intermediate of the citric acid cycle?
   a) Citrate
   b) Aceto acetate
   c) Oxalosyccinate
   d) Succinyl CoA

18) Enzymes having slightly different moelcular structures but performing identical activity are ----------.
   a) Holoenzymes b) Apoenzymes
   c) Isoenzymes d) Coenzymes

19) The dietary fats are transported as ----------.
   a) Chylomicrons b) Micelles
   c) Fatty acid-Albumin complex d) Liposomes

20) Which of the following is ketone sugar?
   a) Glucose b) Maltose
   c) Lactose d) Fructose

2. Solve **any two** of the followings. **20**

a) Explain in detail glycolysis pathway with its significance.

b) Explain the De Novo synthesis of palmitic acid.

c) Give classification of proteins & explain in detail structural classification of proteins.

3. Solve **any seven** of the followings. **35**

a) Define followings.
   i) Redox potential ii) Enthalpy
   iii) Entropy iv) Exergonic reaction
   v) Endergonic reaction

b) Write note on Glucose 6-phosphate dehydrogenase (G6PD) deficiency.

c) Draw and explain urea cycle.

d) Explain electron transport chain.

e) Write note on energy rich compounds.

f) Explain enzyme kinetics.

g) Write note on conversion of cholesterol into Vit. D.

h) Draw HMP-pathway & give its significance.

i) Write note on Diabetes mellitus and Hyper cholesteromia.

****