



DAH-M-20176-N

Seat No. _____

First Year M. B. B. S. Examination

April - 2022

Biochemistry : Paper - II
(New Course)

Time : 3 Hours]

[Total Marks : 100

SECTION - I

- 1 Write a detailed essay on the formation and fate of Acetyl CoA. Support your answer by briefly outlining the one catabolic and one anabolic pathways involving Acetyl CoA at the center stage. **10**

OR

Give a detailed account of how lipids are digested and absorbed in the gastrointestinal tract ?

- 2 Write short notes : (any five out of six) **5×5=25**
- (a) Cori cycle
 - (b) Synthesis of ketone bodies
 - (c) Urea cycle
 - (d) Phenylketonuria
 - (e) Biochemical changes in starvation
 - (f) Dietary fibre

- 3 Read the following case and the answer the questions : **2×5=10**

A 53 years old male came to the physician with complaints of pain and swelling of left big toe , for last couple of days. He admitted that, after having good quantity of alcohol the pain worsen and the pain often awakens him from sleep during early morning. He was non vegetarian. On examination the affected toe was swollen, red and extremely tender. Laboratory investigation showed serum

glucose 85 mg%, serum urea 24 mg%, serum uric acid 14 mg%. A diagnosis of "Gout" was made. He was prescribed anti inflammatory drugs and Allopurinol. He was also advised to restrain alcohol consumption and non vegetarian food for few days.

- (a) What is gout? What is the difference between "Hyperuricemia" and "Gout"?
- (b) What are the causes of primary Gout?
- (c) What are the causes of secondary Gout?
- (d) What is the normal serum uric acid level?
- (e) How Allopurinol is helpful in Gout?

4 Answer the following MCQs : (all are compulsory) **1×5=5**

- (i) Energy derived from food is utilized for the following activity.
 - (a) BMR
 - (b) SDA
 - (c) Physical activity
 - (d) All of the above
- (ii) Which of the following molecules is called as "active sulphate"
 - (a) PAPS
 - (b) SAM
 - (c) FIGLU
 - (d) GAGs
- (iii) The following is the major organ involved in Xenobiotics
 - (a) brain
 - (b) muscle
 - (c) liver
 - (d) kidney
- (iv) Formiminoglutamate (FIGLU) is formed in the metabolism of
 - (a) aspartate
 - (b) glutamate
 - (c) arginine
 - (d) histidine
- (v) All the following hormones promote lipolysis, except
 - (a) Epinephrine
 - (b) glucagon
 - (c) nor epinephrine
 - (d) insulin

SECTION - II

- 5 Give an account of different medical applications of recombinant DNA technology. **10**

OR

What is a balanced diet? Write an essay on the guidelines to be followed while prescribing a balanced diet.

- 6 Write short notes : (any five out of six) **5×5=25**

- (a) Nitric oxide
- (b) Salvage pathways
- (c) Transamination
- (d) Metabolism of VLDL and LDL
- (e) von Gierke's disease
- (f) Tumor markers

- 7 Justify true or false in 2-3 sentences (ten out of eleven) **1×10=10**

- (a) Leading and lagging strand of DNA replicates differently.
- (b) Transcription requires a RNA primer molecule.
- (c) Stress leads to increased blood glucose level.
- (d) Hyper ammonemia damages brain.
- (e) Lipoprotein (a) considered highly atherogenic.
- (f) Blood sample for glucose estimation is collected in fluorinated tubes.
- (g) Mutation in P₅₃ gene is associated with much protection from cancer.
- (h) Uronic acid pathway is important for detoxification.
- (i) cAMP is known as second messenger of hormonal action.
- (j) Galactosemic children leads to develop premature cataract.
- (k) Glycogen synthesis and breakdown can take place simultaneously

8 Answer the following MCQs : (all compulsory) 1×5=5

- (i) Which of the following statements about dietary fibre is/are correct
- (a) Fibre helps lower the risk of colonic cancer.
 - (b) Fibre lowers the serum cholesterol level.
 - (c) Promotes the normal motility of gut and prevent constipation
 - (d) All of the above.
- (ii) The topological stress produced by the separation of DNA strand is relieved by:
- (a) DNA gyrase
 - (b) DNA helicase
 - (c) DNA polymerase
 - (d) All the above
- (iii) All the following are phase I reactions except:
- (a) Hydrolysis
 - (b) Reduction
 - (c) Conjugation
 - (d) Hydroxylation
- (iv) Which of the following vitamins is associated with purine synthesis
- (a) niacin
 - (b) pyridoxine
 - (c) folate
 - (d) B₁₂
- (v) The following amino acid directly takes part in the synthesis of urea
- (a) histidine
 - (b) lysine
 - (c) arginine
 - (d) methionine
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