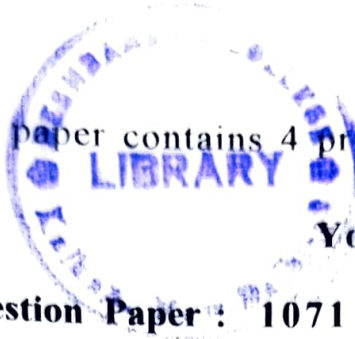


[This question paper contains 4 printed pages.]



17/12/24

Your Roll No.....

Sr. No. of Question Paper : 1071

I

Unique Paper Code : 2492012301

Name of the Paper : Metabolism of Lipids (DSC)

Name of the Course : **BSc (Hons) Biochemistry (NEP)**

Semester : III

Duration : 2 Hours

Maximum Marks : 60

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. There are 6 questions.
3. Attempt any 4 questions.
4. **All** questions carry equal marks. Question no. 1 is compulsory.

1 (a) Justify the following :

- (i) Triacylglycerol is especially suitable as a storage fuel.

P.T.O.

- (ii) An individual with a genetic defect in enoyl CoA isomerase will have difficulty in metabolizing oil.
  - (iii) Linoleic and linolenic acids are essential to mammals.
  - (iv) Two isoenzymes of HMG CoA synthase are known.
  - (v) Fatty acid biosynthesis in rat liver homogenate is severely inhibited when avidin is added.
  - (vi) Brain, erythrocytes and adrenal medulla cannot utilize fatty acids for energy requirements.
- (b) Write the reactions catalyzed by the following enzymes :
- (i) HMG CoA Lyase
  - (ii) Acetyl CoA carboxylase (12,3)
2. Differentiate between the following :
- (a) Alpha and omega oxidation.
  - (b) Endogenous and Exogenous pathway of lipid

transport.

(c) Fatty acid oxidation in mitochondria and peroxisome. (5×3)

3. (a) Calculate the net number of ATP generated on complete oxidation of oleic acid.

(b) Give an overview of the digestion and absorption of lipids.

(c) With the help of a diagram explain the process by which a fatty acid is transported to mitochondria for its complete oxidation. (5×3)

4. Give the following conversions :

(a) Acetyl CoA to mevalonate

(b) Dihydroxyacetone phosphate to phosphatidic acid

(c) CDP-diacylglycerol to phosphatidylethanolamine (5×3)

5. (a) What are the various classes of lipoproteins? How do they differ from each other in terms of lipid composition?

(b) What are Ketone bodies and what are their uses? What is the significance of ketone bodies during P.T.O.

diabetes and starvation?

- (c) What are the various ways by which cholesterol biosynthesis is regulated? Elaborate. (5×3)

6. Write short notes on the following :

(a) Plasmalogen Synthesis

(b) Fatty Acid Synthase Complex

(c) Artherosclerosis (5×3)