

(i) Printed Pages : 2

Roll No.

(ii) Questions : 9 Sub. Code :

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Exam. Code :

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**B.Sc. (Hons.) (Bio-Technology) FYUP 4th Semester
(2056)**

BIOCHEMICAL METABOLISM

Paper : BTED402

Time Allowed : Three Hours]

[Maximum Marks : 68

Note :— Attempt any **five** questions; at least **one** question is compulsory from each section, question no. **1** is compulsory.

1. Give the answer of following question in brief.

(I) Define the thermodynamics.

(II) Write the Second principle of thermodynamics.

(III) Give the name of two ketone bodies.

(IV) Write two alternative names of glycolysis cycle.

(V) What is PDH complex?

(VI) Write the name of two diseases caused by metabolism. 6×2

SECTION-I

2. (a) What is oxidative phosphorylation? Write the complete mechanism of ATP production in ETC.

(b) Write names of two energy-rich compounds which provide more energy than ATP. 7,7

3. (a) How to proton gradient created in the ETC?

(b) Prove that ATP drives the biochemical reaction in the forward direction. 7,7

SECTION-II

4. (a) What is the PDH complex? Write its mode of action and also prove that this links between glycolysis and the TCA cycle.
- (b) Write the biochemical pathway for the conversion of Acetyl CoA into Malonyl CoA. 7,7
5. (a) Explain that the TCA cycle is an amphibolic pathway.
- (b) Mention the various regulatory steps present in the glycolysis diagram. 7,7

SECTION-III

6. (a) Why is fatty acid biosynthesis important in the body? Write the complete biochemical pathway for fatty acid biosynthesis.
- (b) Calculate the total number of ATP molecules produced when one molecule of a saturated fatty acid is completely broken down. 7,7
7. (a) Why is glucose biosynthesis essential in the human body and how is glucose biosynthesized?
- (b) Give the various roles of glycogen metabolism. Draw the pathway for glycogen degradation. 7,7

SECTION-IV

8. (a) Write the role of B_6 in amino acid metabolism.
- (b) Write the catabolism or degradation of two essential amino acids. 7,7
9. (a) Write a short note on bile acid metabolism.
- (b) Write the de novo pathway for purine. 7,7