

Exam. Code : 107403
Subject Code : 2203

B.Sc. (Biotechnology) 3rd Semester

BIOCHEMISTRY—III

Paper : BT—3

Time Allowed—3 Hours]

[Maximum Marks—40

SECTION—A

1. ALL questions are compulsory : 8
- (i) Write down the structural formula of ATP.
 - (ii) At equilibrium ΔG° is equal to
 - (iii) Name two irreversible reactions of glycolysis.
 - (iv) What is substrate level phosphorylation ? Give one example.
 - (v) What are anaplerotic reactions of TCA ?
 - (vi) What is the target of cyanide in respiratory chain ?
 - (vii) Write structural formula of FAD.
 - (viii) What is the function of Coenzyme Q10 ?

SECTION—B

Note :— Attempt any *five* questions out of eight.

5×4=20

2. (i) Why phosphocreatine is an energy rich compound ?

- (ii) Write a short note on basic principles of metabolism.
- (iii) How is glycogen synthesized ?
- (iv) Explain feeder pathways of glycolysis.
- (v) Describe the regulation of Kreb's cycle.
- (vi) Describe the component of pyruvate dehydrogenase complex and reaction catalyzed by this complex.
- (vii) How oxidation and phosphorylation are coupled by proton gradient in mitochondria ?
- (viii) Discuss the role of FADH₂ as electron carrier in oxidation of fuel.

SECTION—C

Note :— Attempt any *two* questions out of four. $2 \times 6 = 12$

3. (i) Name different energy rich compounds. Explain the importance of energy rich compound in metabolism. Discuss by taking suitable examples.
- (ii) How gluconeogenesis differ from glycolysis ? How irreversible reactions of glycolysis are reversed during gluconeogenesis ?
- (iii) Write the reactions of Kreb's cycle. What is the significance of Kreb's cycle in metabolism ?
- (iv) What are structural features of ATP synthase complex ? How is ATP produced by it ? What is the significance of chemiosmotic hypothesis ?