

(Following Paper ID and Roll No. to be filled in your Answer Books)

PAPER ID : MG7

Roll No.

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M. TECH. (Sem.II)

THEORY EXAMINATION 2015-16

BIO ENERGETICS & METABOLIC ENGINEERING

Time : 3 Hours

Total Marks : 100

SECTION-A

1. Attempt all parts. All parts carry equal marks. Write answer of each part in short. (2×10=20)
- Give the structure of ATP.
 - Write the name of four high energy compounds.
 - Write the significance of glyoxylate cycle
 - Differentiate between C3 cycle and C4 cycle.
 - Differentiate between light and dark reaction.
 - Why does pentose phosphate pathway known as HMP shunt pathway?
 - Differentiate between active and passive transport.
 - Differentiate between osmosis and diffusion.
 - Write the name of four secondary messengers used in signal transduction.
 - What is substrate level of phosphorylation?

SECTION-B

Note: Attempt any **five** parts. All parts carry equal marks: (5×10=50)

2. Write process of fatty acid unsaturation.
3. Describe regulation of the ETS
4. Explain light reaction of the photosynthesis.
5. Justify that the photorespiration is a necessary evil.
6. What is secondary metabolite? Write name and its significance?
7. Write differences between fatty acid biosynthesis and fatty acid degradation.
8. Explain the structure of plasma membrane given by Singer and Nicolson.
9. Explain autocrine, paracrine and endocrine signaling.

SECTION-C

Note: Attempt any **two** questions from this section.

10. (a) Discuss gluconeogenesis steps in detail. Write down its significance in human body.
(b) Describe oxidative phosphorylation. Name two inhibitors of ETC.
11. (a) Write the process of fatty acids biosynthesis. Where does it occur? Write regulation of fatty acid biosynthesis.
(b) Elaborate mechanism of beta oxidation of fatty acids in detail and its significance.
12. (a) Discuss mechanism of protein targeting with its significance.
(b) Explain GPCR with an example.
