

N.B.: All questions are compulsory

1. Answer the following

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| a) Give 2 examples of physiological uncouplers of oxidative phosphorylation | 1 |
| b) Name a drug that inhibits DNAPolymerase III | 1 |
| c) Name the enzyme involved in synthesis of eukaryotic mRNA | 1 |
| d) Name drug which inhibits HMG CoA reductase | 1 |
| e) Name enzyme involved in removal of primer in prokaryotic replication | 1 |
| f) Name a drug inhibiting thymidylate synthase | 1 |
| g) How does tetracycline inhibits protein synthesis | 1 |
| h) Give the significance of glyoxylate pathway | 2 |
| i) Give names of two shuttle systems for transfer of reducing equivalents to mitochondria | 2 |
| j) Enlist any two ketone bodies with its structure | 2 |
| k) Define Substrate level phosphorylation with an example | 2 |
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| 2. a) Give the names and structures of the substrate and product for the following enzymatic reactions (any 2) | 4 |
| i) HMG CoA synthase | |
| ii) Pyruvate carboxylase | |
| iii) β - Ketoacyl ACP reductase | |
| b) Write structures of given substrate and product with name of the enzyme catalysing the reaction (any 2) | 4 |
| i) α -D- ribose-5- phosphate to 5-PRPP | |
| ii) Fructose-6-phosphate to Fructose-1,6-bisphosphate | |
| iii) Squalene to Squalene- 2,3-epoxide | |
| c) What is Salvage pathway? | 3 |
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| 3. a) Outline series of reaction involved in Kreb's cycle | 4 |
| b) Write reactions for actual β -oxidation of palmitic acid with net ATP yield | 4 |
| c) Write note on telomere and telomerase | 3 |
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| 4. a) Discuss post transcriptional modifications | 4 |
| b) Describe <i>de novo</i> synthesis of IMP | 4 |
| c) Draw schematic representation of ETC | 3 |
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| 5. a) Discuss translation in detail | 4 |
| b) Write reactions for oxidative phase of pentose phosphate pathway. | 4 |
| c) Explain any one method for DNA sequencing | 3 |
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| 6. a) Discuss solid phase DNA synthesis | 3 |
| b) Give the biosynthesis of UTP | 3 |
| c) Compare enzymatic biosynthesis against chemical synthesis of peptide | 3 |
| d) Describe role of proteases and peptidases in peptide sequencing | 2 |