

N.B.: All questions are compulsory

## 1. Answer the following

- 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
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)  $\beta$ - Ketoacyl ACP reductase
- b) Write structures of given substrate and product with name of the enzyme catalysing the reaction (any 2) 4
- i)  $\alpha$ -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
3. a) Outline series of reaction involved in Kreb's cycle 4
- b) Write reactions for actual  $\beta$ -oxidation of palmitic acid with net ATP yield 4
- c) Write note on telomere and telomerase 3
4. a) Discuss post transcriptional modifications 4
- b) Describe *de novo* synthesis of IMP 4
- c) Draw schematic representation of ETC 3
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
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