2009

M.Sc.

1st Semester Examination

HUMAN PHYSIOLOGY

PAPER—I

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Unit—01

Answer any *two* questions.

1. (a) Give an account of Boyer's mechanism of ATP synthesis.

(b) Discuss in brief the mode of action of Glucocorticoids and Insulin in the maintenance of Blood Sugar Level? 4+6

2. (a) Discuss the different criteria for the amino acids to take part in α-helix conformation

(b) Give a brief account of Ramachandran Plot.

(c) What is β-turn? 4+4+2

3. (a) State two cataplerotic reactions that utilize and drain citric acid cycle intermediates.

(b) Cite an example on the role of vitamin as coenzyme in metabolic reaction.

(c) Briefly describe the regulatory role of NADH and Ca^{2+} in the citric acid cycle. (2+2)+2+4

4. (a) Why 1, 6–dihydroinosine of considered as a better competitive inhibiter than inosine for the enzyme adenosine deaminase?

(b) An enzyme has a km of 5 μM in the absence of a competitive inhibitor and a K_m of 10 μM in the presence of 2 μM of the inhibitor. Calculate K_i.

(c) What is Signal Peptide? Elaborate the SRP cycle and write a note on nascent polypeptide translocation and cleavage. 2+3+(1+4)

Unit—02

Answer any *two* questions.

1. What do you mean by cell cycle? Describe the various unique aspects of eukaryotic replications. Describe different eukaryotic DNA polymerases. 2+4+4

2. (a) How did the transformation experiments of Griffith differ from those of Avery and his associates.

(b) How is DNA organized in chromosomes? 5+5

3. (a) What are the promotor region (box) present in the eukaryotic system.

(b) Write the different types of DNA repair mechanism. 3+7

4. (a) What are the important features of the genetic code?

(b) How is the genetic information in mRNAs translated into the amino acid sequences of polypeptide? 2+8

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