2012

M.Sc.

1st Semester Examination

HUMAN PHYSIOLOGY

PAPER—PHY-101

Full Marks : 40

Time : 2 Hours

The figures in the 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 -1)

Answer any *two* questions.

1. (a) What do you understand by tertiary structure of proteins ? What is its physiological importance ?

(b) Discuss briefly about the modern concept of protein folding including the role of Chaperones.

(c) What is "Molten Globule" ? (2+1)+6+1

2. (a) Citing an suitable example, explain why transition state analogs are more effective competitive inhibitors.

(b) State the Kinetics of competitive inhibition.

(c) Describe the role of microsomal elongase system for fatty acid chain elongation. 3+3+4

3. (a) What are N-linked and O-linked glycosylation of proteins ?

(b) Elaborate the synthesis of oligosaccharide core of glycoproteins.

(c) Describe how TCA cycle is tightly regulated by NADH and other factors. 2+4+4

4. (a) What is oxidative phosphorylation ?

(b) Describe the role played by NADH-Q-oxidoreductase in oxidative phosphorylation.

(c) Discuss the role of cortisol in carbohydrate metabolism. 2+4+4

(Unit-2)

Answer any *two* questions.

1. (a) Distinguish between A, B and Z DNA.

(b) What is replicon and replisome ?

(c) Write about the mechanism of euxaryotic DNA replication. 3+2+5

2. (a) What is spliceoseme ?

(b) Write the biological significance of intron ?

(c) Discuss the splicing mechanism of mRNA. 2+3+5

3. (a) State the types and importance of repetitive sequences.

(b) Differentiate between oneogene and protooneogene.

(c) Describe the mutant Ras protein signalling mechanism. 4+2+4

4. (a) Define 'genetic code'.

(b) Write the sequences of 'terminating codon'.

(c) What is the significance of 'Hogness box'.

(d) Describe the difference between prokaryotic and eukaryotic protein synthesis. 2+2+2+4

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