(A-31) Seat NO: _____

No. of Printed Pages: 2

SARDAR PATEL UNIVERSITY

M.Sc. (Integrated) Biotechnology (IGMBT), Seventh Semester Examination

Tuesday, 18th October 2016

2:00 P.M to 5:00 P.M

PS07CIGMB1: Regulation of metabolic pathways

Total Marks: 70

Note: (1) Figures to the right indicate marks.
(2) Draw a neat and labeled diagram, wherever necessary.

Q. 1 Choose the most appropriate answer from the four alternatives given: [8]

(1) Which of the following is true?
Control of enzyme activity is done by
(a) enzyme induction and end product repression (b) end product repression, enzyme induction and catabolite repression (c) Feedback inhibition, enzyme induction and end product repression (d) Non of the above

(2) An allosteric protein is one which has :
(a) Catalytic site (b) Effector site (c) Both of them (d) None of them

(3) Nicotinic Acetylcholine receptor is an example of: (a) VGIC (b) LGIC (c)VVIC (d) none of the above

(4) What happen when Insulin receptor binds insulin :
(a) phosphorylates IRS-1 (b) autophosphorylation IRS-1 (c) autophosphorylation of Grb2 (d) autophosphorylation on its Tyr residues

(5) In the conversion of triose phosphate, Fructose 2-6 Bisphosphate regulate _____ and _____.
(a) PFK-2 and FBPase-2 (b) PP-FK1 and FBPase-2
(c) PP-PFK-1 and FBPase-1 (d) PFK-2 and FBPase-1

(6) First reaction of B oxidation is catalysed by :
(a) acetyl CoA dehydrogenase (b) Acyl CoA dehydrogenase
(c)both of them (d) none of the above

(7) Which of the following is non toxic form of ammonia :
(a) glutamate (b) glutamine (c) glucosamine (d) none of the above

(8) Which of the following amino acid plays a special role in transporting amino group to the liver in nontoxic form : (a) Aspartate (b) Alanine (c) Proline (d) Glutamate

(PTO)

[14]

Q.2 **Answer any SEVEN from the following:**

(1) Demonstrate the activity of an allosteric enzyme with a negative effector site, in form diagram

(2) Give full name of SREBP-1C and ChREBP.

(3) Write mechanism of action of intra cellular receptor in brief.

(4) How cyclic AMP activates Protein Kinase A (PKA)?

(5) Write clinical significance of HMP in brief.

(6) What is the role of fatty acyl - coA synthetase in the lipid catabolism?

(7) What is role of Acyl carrier protein in fatty acid synthesis?

(8) Write a brief note on oxidative decarboxylation.

(9) By which reaction α-ketoglutarate is converted in gluatamate?

Q.3 (a) Explain mechanism of action of catabolite repression with suitable example [6]

(b) Discuss any one process is considered a form of negative control of enzymes synthesis in the cells. [6]

OR

(b) How FOX01 regulates glycolysis and gluconeogenesis? Explain in brief. [6]

Q.4 (a) Write a detail note on gated ion channels. [6]

(b) Explain regulation of gene expression by insulin through MAP Kinase cascade in detail. [6]

OR

(b) Write detail account on JAK-STAT transduction mechanism. [6]

Q.5 (a) Write detail account on cellulose synthesis. [6]

(b) Discuss regulation of PFK in detail. [6]

OR

(b) Write detail account on oxidation of monounsaturated fatty acid. [6]

Q.6 (a) Describe catabolism of purine nucleotides and associated metabolic disorders [6]

(b) Write detail account on urea cycle. [6]

OR

(b) Write a note on biosynthesis of Cytidine 5'-triphosphate [6]

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