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# The West Bengal University of Health Sciences 2nd BMLT November-December, 2022 Examination

ORECITY Subject: Advanced Biochemistry Time: 3 hrs MID Full Marks: 100 ESTD 2017 Attempt all questions 1. Tick the correct answer : 20 x 1 ALLIBE Familial Hypercholesterolemia is a codominant genetic disorder caused by a mutation of the gene that encodes a) for : i) Apolipoprotein E. ii) Apolipoprotein B. iii) LDL receptor. VLDL receptor. iv) Glycolytic pathway regulation involves : b) ii) Allosteric inhibition by ATP. Allosteric stimulation by ADP. i) iii) Feedback or product inhibition by ATP. iv) All of the above. Oxidative conversion of many amino acids to their corresponding keto acids occurs in mammalian : c) Liver & kidney. ii) Intestine. iii) Pancreas. iv) Adipose tissue. i) d) A kinase is an enzyme that : Removes phosphate groups of substrates. i) Uses ATP to add a phosphate group to the substrate. ii) iii) Uses NADH to change the oxidation state of the substrate. iv) Removes water from a double bond. Phosphofructokinase (PFK)-I, the major flux-controlling enzyme of glycolysis is allosterically inhibited and e) activated by : AIP & CIP. ii) AMP & Pi. iii) ATP & ADP. iv) Citrate & ATP. i) f) Which enzyme is termed as the rate limiting enzyme of cholesterol synthesis? Thiolase. HMG-CoA reductase. iii) HMG-CoA carboxylase. iv) None of the above. i) ii) Reactions of stage 1 of cholesterol biosynthesis are similar to which process? **g**) Catabolism of fatty acid. ii) Synthesis of fatty acid. i) iii) Synthesis of ketone bodies. iv) All of the above. Insulin enhances the uptake of triacylglycerols in adipose tissues. Which of the following enzyme is h) activated that facilitates the uptake? i) Hormone-sensitive lipase. ii) Lipoprotein lipase. iii) LCAT. iv) Apo C-II. i) Which of the following proteins is the precursor for the thyroid hormone, and also a marker of thyroid cancer? Thyroalbumin. ii) Thyroglobulin. i) iii) Thyroid binding globulin. iv) All of the above. Which of the following inhibits acetyl CoA carboxylase- a rate-limiting enzyme of Fatty acid metabolism? j) Citrate. iii) Malonyl CoA. ii) ATP. iv) Acyl CoA. i) Which of the following about the biochemical properties of Insulin is true? k) i) It has got one peptide chain. ii) It has got chains linked together by sulphus atom. iii) It has got two chains linked together by magnessium bond. iv) There are 30 amino acids each in the two chains. Which enzyme catalyzes the conversion of pyruvate to oxaloacetate? 1) Pyruvate carboxylase. ii) Pyruvate dehydrogenase. i) iii) Pyruvate kinase. iv) Phosphofructokinase-l. m) Importance of HMP shunt is/are : To produce ribose-5-phosphate. ii) To generate NADPH. i) iii) Both (i) & (ii). iv) None of the above. Tryptophan could be considered as precursor of : n) ii) Melanin. Melanotonin. iii) Thyroid hormones. iv) Epinephrine. i) Citrulline is an intermediate of : 0) i) TCA cycle. ii) HMP shunt. iii) Calvin cycle. iv) Krebs-Henseleit cycle.

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	p)	Allosteric inhibitor of glutamate dehydrogenase is : i) ATP. ii) ADP. iii) AMP. iv) GMP.
	<b>q)</b>	Regan isozyme is also known as :i) Alpha 1 ALP.ii) Alpha 2 heat liable ALP.iii) Alpha 2 heat stable ALP.iv) Pre beta ALP.
	r)	Which of the following co factor(s) is/ are required for the activity of alkaline phosphatase? i) Ca+. ii) Mg+. iii) Zn+. iv) Both (ii) & (iii).
	s)	Most useful test for assessing renal function is : i) Clearance test. ii) GFR. iii) Both i) & ii). iv) None of the above.
	t)	Which of the following enzyme is not used to diagnose hepatobiliary disease? i) Alkaline phosphatase. ii) Alanine aminotransferase.
		iii) γ-glutamyl transferase. iv) 5'- nucleotidase.
2.	An	swer the following questions : 5 x 2
	a)	Rate limiting steps of Glycolysis.
	b)	Importance of Free T <sub>4</sub> over total T <sub>4</sub> .
	c)	Use of Dopamin antagonists.
	d)	Difference between apoenzyme and proenzyme.
	e)	Difference between apoenzyme and proenzyme. Calculation of eGFR. ite short notes on <i>any six</i> of the following : $6 \times 5$
3.	Wr	ite short notes on <i>any six</i> of the following: $( \underbrace{\bigcirc}_{\Xi} (ESTD 2017) \overset{\frown}_{\Box} ) $
	a)	Inborn error of protein metabolism.
	b)	Lipid Profile Test.
	c)	AST.
	d)	Hormonal regulation of blood glucose.
1	e)	Atherosclerosis.
	f)	Regulation of electrolytes in human body.
	g)	VLDL metabolism.
	h)	Importance of GGT in liver function test.
4.	An	swer any one of the following :
	a)	Describe the thyroid hormone biosynthesis process. Discuss about the functions of it. 5+5
	b)	Explain the renal function test with clinical importance. 10
5.	An	swer any two of the following :
	a)	Explain the pathway of glycogenesis. Discuss about glycogen storage diseases. 7+8
	b)	Define transamination and transmethylation. Make a brief discussion regarding common metabolic disorder
	ĺ	due to abnormal amino acid metabolism. Describe the urea cycle. 2+2+6+5
	c)	What is the clinical importance of enzymes? Describe the role of acid phosphatase and alkaline phosphatase
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### The West Bengal University of Health Sciences

## BMLT 2<sup>nd</sup> Year November-December 2022, (Oral & Practical) Examination

#### Subject- Advanced Biochemistry

Full Marks – 100

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Time - 6 hrs.

1. Estimate blood sugar in supplied sample by GOD-POD method. (Write down the principle, procedure and interpret the result of it) 3+5+2

2. What does A/G ratio indicate? What is Microalbuminuria? Estimate total protein in supplied sample by Biuret method. (Write down the principle, procedure and interpret the result of it) 2+3+3+5+2

3. Mention the differences between kinetic and end point reaction. Write down the principle, procedure and clinical significance of urea estimation in serum.

5+4+6+5

4. i) What is Beer-Lambert law? Write down the applications of colorimeter. 3+4 ii) Write down the principle, procedure and clinical significance of Bilirubin (Total and direct) estimation in serum. 3+6+4

5. Lab notebook

6. Viva-voce



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