## Paper / Subject Code: 79001 / Biochemistry

**Total Marks: 75** 

2 ½ Hours

1.	Attempt all questions.
<ol> <li>3.</li> </ol>	All questions carry equal marks.  Draw neat labeled diagrams wherever necessary.
	Use of log tables and non-programmable calculator is allowed.
5.	For Q 2, Q 3 and Q 4 attempt A and B OR C and D.
Q 1	Do as directed (Any fifteen)
1.	Precursor amino acid for biosynthesis of serotonin is
2.	Synthesis of glucose from non-carbohydrate precursors is accomplished
	by a pathway called
3.	The number of NADPH produced when one molecule of Glucose 6-
	phosphate completes oxidative phase of HMP shunt is
4.	Give one example of glucogenic amino acid.
5.	Name one enzyme of Glyoxalate cycle that is not present in vertebrates.
6.	Name the organ in which urea is produced in humans.
7.	Give one example of energy rich compound.
8.	State True / False: Non-oxidative deamination of histidine releases ammonia.
	Write the equation for the reaction catalysed by following enzymes: -
9.	Citrate synthase.
10.	Glutamate dehydrogenase.
	Name the enzyme that catalyses the conversion of following reactions: -
11.	Arginine to ornithine.
12.	Glyceraldehyde 3-phosphate to 1,3-bisphosphoglycerate.
13.	The reactions of ketone body formation occur in the matrix of
	a. kidney mitochondria b. liver mitochondria
	c. kidney cytosol d. liver cytosol
14.	The absence of Hypoxanthine-Guanine Phosphoribosyl Transferase
	activity is observed in
	a. Lesch-Nyhan syndrome b. Zellweger syndrome
	c. Refsum's disease d. X-linked adrenoleukodystrophy

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15.	are lipid-binding proteins in the blood which transports	
	triacylglycerols, phospholipids, cholesterol, and cholesteryl esters between	organs.
	a. Apolipoproteins b. Lipases	
	c. Carboxylases d. Chylomicrons	
16.	The fatty acyl group is enzymatically transferred from Carnitine to intra-	
	mitochondrial Coenzyme A by	
	a. Carnitine Acyltransferase II, b. Lipase,	
	b. Carboxylase, d. Carnitine Acyltransferase I	
17.	Propionyl-CoA is first carboxylated to form the D stereoisomer of methyl	
	malonyl-CoA by	
	a. Propionyl-CoA Carboxylase, b. Methylmalonyl-CoA Epimerase,	
	c. Methylmalonyl-CoA Mutase, d. Thiolase	
18.	Branched fatty acids are catabolized in peroxisomes of animal cells by	
	a. $\omega$ oxidation b. $\alpha$ oxidation c. $\beta$ oxidation d. $\mu$ oxidation	
19.	Phosphorylation of permits hormone sensitive lipase access	
	to the surface of the lipid droplet.	
	a. perilipin b. triacylglycerols c. carnitine d. acyl-CoA	
20.	The overall equation of Palmitoyl-CoA beta oxidation is:	
	Palmitoyl-CoA + 7CoA + 7FAD + 7NAD+ + 7H <sub>2</sub> O	
	$\rightarrow$ + 7FADH <sub>2</sub> + 7NADH + 7H <sup>+</sup>	
	a. 8 Acetyl-CoA b. 7 Acetyl-CoA	
	c. 14 Acetyl-CoA d. 16 Acetyl-CoA	
Q. 2 A	Discuss the reactions involved in the non-oxidative phase of the pentose	08
	phosphate pathway.	
Q. 2 B	Explain the regulation of glycolysis pathway.	07
	OR	
Q. 2 C	With the help of a neat labelled diagram explain the structure and	08
	mechanism of rotary motor model for ATP generation.	
Q. 2 D	Describe the Glyoxalate cycle and add a note on its significance.	07

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Q. 3 A	Justify: Amino acids are degraded to metabolites that integrate into Krebs cycle.	08
Q. 3 B	Discuss the metabolic disorders associated with defects in urea cycle.	07
	OR	
Q. 3 C	Describe the mechanism of Transamination of amino acids.	08
Q. 3 D	Explain the structure of glutathione and state its significance.	07
Q. 4 A	Describe beta oxidation of saturated fatty acids.	08
Q. 4 B	Give detailed account of Purine catabolism.	07
	OR	
Q. 4 C	Elaborate reactions involved in the $\alpha$ -oxidation of a branched-chain fatty acid.	08
Q. 4 D	Explain three additional reactions involved in complete oxidation of odd number fatty acid.	07
Q. 5	Write Short notes on any three of the following:	15
a.	Metabolic disorders associated with pentose phosphate pathway.	
b.	Role of coenzyme Q in ETC.	
c.	Non oxidative deamination.	
d.	Role of Cyclic AMP-dependent protein kinase (PKA)	
	in triacylglycerol mobilization.	
e.	ω- oxidation of fatty acid.	