Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Sem-III (Biotechnology)Examination December 2009

Subject code: 130403 **Subject Name: Basic Biochemistry**

Date: 23 /12 /2009 **Time: 11.00 am – 1.30 pm**

Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Draw the Pentose Phosphate Pathway with all necessary structures.	**07**
	(b)	Explain the Glyoxylate Cycle.	**05**
	(c)	Calculate the total ATP produced when 200 molecules of Fructose-6-Phosphate enters the Glycolysis till the end of TCA cycle. [1 NADH = 3 ATP, 1 $FADH_2$ = 2 ATP]	**02**
Q.2	**(a)**	Describe Urea Cycle with all necessary structures.	**07**
	(b)	Explain metabolic breakdown of Linoleic acid.	**07**
		OR	
	(b)	Explain the fatty acid activation and its transportation across the mitochondrial membrane.	**07**
Q.3	**(a)**	Discuss metabolic breakdown of Valine.	**10**
	(b)	Wrtie an account on Watson and Crick model of DNA.	**04**
		OR	
Q.3	**(a)**	Draw the pathway for the synthesis of pyrimidine ribonucleotide and explain it.	**10**
	(b)	Describe the primary and secondary structure of protein.	**04**
Q.4	**(a)**	Draw the breakdown pathways for the AMP, IMP, XMP and GMP.	**07**
	(b)	Explain: Water is an universal solvent.	**04**
	(c)	Give classification of lipids.	**03**
		OR	
Q.4	**(a)**	Explain synthesis of glucose form noncarbohydrate precursors.	**07**
	(b)	Derive Henderson-Hasselbalch equation	**04**
	(c)	Enlist different hormones secreted from corresponding endocrine glands with their respective functions.	**03**
Q.5	**(a)**	What is Glycogenesis? Explain it.	**07**
	(b)	Explain chemistry and biological active form of pantothenic acid. How its biosynthesis takes place?	**04**
	(c)	Write a short note on macronutrients.	**03**
		OR	
Q.5	**(a)**	What is Glycogenolysis? Explain it.	**07**
	(b)	Give classification of hormones on the basis of hormone receptor mechanism.	**07**

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