Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III (NEW) EXAMINATION – SUMMER 2015

Subject code: 2132604 **Date: 11/06/2015**

Subject Name: Advanced Engineering Chemistry

Time: 02.30pm-05.00pm **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)**	Answer the following questions: (i) Name any one nitrating agent used in nitration unit process. (ii) What is vat dye? (iii) Define cracking. (iv) Which among the following reaction intermediate does not possess charge? Carbocation, carbanions, Free radical. (v) Calculate pH of .001 N NaOH. (vi) Monomer of starch is..... (vii) Define the term “auxochrome” and “Chromophore”	**07**
	(b)	What are Dyes? Give classification of dyes on the basis of their chemical constitution.	**07**
Q.2	**(a)**	Write a note on optical isomerism.	**07**
	(b)	Giving suitable examples, explain synthetic and natural polymers.	**07**
		OR	
	(b)	Answer the following. (i) Give any two differences between homolysis and heterolysis (ii) Briefly explain how pH is measured? (iii)What is alkylation? Write reaction for Friedel Craft alkylation giving example.	 **02** **02** **03**
Q.3	**(a)**	Explain nitration unit process with suitable examples.	**07**
	(b)	Explain quick vinegar process of manufacturing acetic acid. State properties of acetic acid.	**07**
		OR	
Q.3	**(a)**	Write a note on fractional distillation of crude oil.	**07**
	(b)	Differentiate between SN1 & SN2 reactions giving their mechanism.	**07**
Q.4	**(a)**	Explain mechanism and application of Aldol Condensation and Dickmann’s reaction	**07**
	(b)	What do you understand by buffer solution? What are different types of buffer solution, explain with examples.	**07**
		OR	
Q.4	**(a)**	State difference between unit operation and unit process. Explain polymerization process.	**07**
	(b)	What do you understand by carbohydrates? Give classification of carbohydrates.	**07**

Q.5	**(a)**	Answer the following: (i) Differentiate between: Enantiomer and Diasteromers (ii) Write chemical reaction for Saponification	**07**
	(b)	Write note on: (i) Inductive effect (b) Nucleic acids	**07**
		OR	
Q.5	**(a)**	Give an account of various reactions occurring in organic compounds with suitable examples.	**07**
	(b)	Define the following terms: (i) Cracking (ii) Conductivity (iii) Hydrolysis (iv) isomerism (v) resonance	**07**

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