Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III(New) • EXAMINATION – WINTER 2016

Subject Code:2132604 Date:02/01/2017

Subject Name:Advanced Engineering Chemistry

Time:10:30 AM to 01:00 PM Total Marks: 70

Instructions:

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

			MARKS
Q.1		**Short Questions**	**14**
	1	Define elastomers?	
	2	Give monomer of polyethene.	
	3	What is pH of 10^{-2} N HCl?	
	4	Give example of azo dye.	
	5	Give example of a natural polymer.	
	6	Write reaction for Friedel Craft alkylation.	
	7	Define carbon free radical.	
	8	What is a dye?	
	9	Mention any two uses of chloroform.	
	10	Give any one difference between soap and detergent	
	11	What do you understand by nitration?	
	12	What do you mean by conductance?	
	13	Which among formic acid and acetic acid is a stronger acid?	
	14	Define optical isomerism.	
Q.2	**(a)**	Give a comparative account of addition and condensation polymerization.	**03**
	(b)	Write a short note on various reactions occurring in organic compounds.	**04**
	(c)	What do you understand by carbohydrates? Give detailed classification of carbohydrates.	**07**
		OR	
	(c)	Give an account of modern theories of dyes.	**07**
Q.3	**(a)**	Write monomer of following polymers: (i) Neoprene (ii) PVC (iii) Teflon	**03**
	(b)	Differentiate between acid and base	**04**
	(c)	Explain fractional distillation of petroleum with neat and well labeled diagram.	**07**
		OR	
Q.3	**(a)**	Differentiate between hemolytic bond cleavage and heterolysis bond cleavage.	**03**
	(b)	In brief explain manufacturing of sucrose.	**04**
	(c)	What is unit process? Write in brief about polymerization process.	**07**
Q.4	**(a)**	Define nucleophile and electrophile giving suitable examples.	**03**
	(b)	Compare natural and synthetic polymers.	**04**
	(c)	What is a chiral carbon? Explain optical isomerism in lactic acid or tartaric acid.	**07**
		OR	
Q.4	**(a)**	Write any one preparation, properties and uses of ethanol.	**03**
	(b)	Write a short note on fuel cell.	**04**
	(c)	Explain mechanism and application of Canizzaro reaction.	**07**
Q.5	**(a)**	What are buffer solutions? Name different types of buffer solutions	**03**
	(b)	What are monomers of protein? Write importance of proteins.	**04**

	(c)	Write manufacturing process of aceto-acetic ester and mention its properties and uses.	**07**

OR

Q.5	**(a)**	Give example of (i) Addition reaction (ii) Substitution reaction.	**03**
	(b)	What are nucleic acids? Differentiate between DNA and RNA.	**04**
	(c)	Write a detailed note on synthetic organic polymers.	**07**

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