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**Question Paper Code: 51932**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Third Semester

Chemical Engineering

15UCH302 - ORGANIC CHEMISTRY

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. A nitrating mixture is known as \_\_\_\_\_  
(a)  $HNO_3 + H_2SO_4$  (b)  $HNO_3 + HCl$   
(c)  $HNO_3 + HF$  (d)  $HCl + H_2SO_4$
2. Name the product when alcohol gets oxidized  
(a) carboxylic acid (b) aldehyde (c) amines (d) amides
3. What is the product of Aldol condensation?  
(a)  $\alpha, \beta$ -unsaturated ester (b)  $\beta$ -hydroxy aldehyde or ketone  
(c)  $\beta$ -hydroxy amide (d)  $\alpha$ -hydroxy anhydride
4. The catalyst used in Benzoin condensation is \_\_\_\_\_.  
(a)  $NaOH$  (b)  $HCl$  (c)  $CN^-$  (d)  $Na_2CO_3$
5. What is used to initiate a free radical polymerization?  
(a) benzoyl peroxide (b) benzoic acid  
(c) styrene (d) phthalic acid

6. The reagent NBS is used for the preparation of\_\_\_\_\_.
- (a) Gilman reagents (b) Grignard reagents  
(c) Alkenes out of alkyl halides (d) Bromination of allylic positions
7. \_\_\_\_\_ dyes possesses sulphonic, carboxylic and phenolic groups in it.
- (a) acid dyes (b) basic dyes (c) mordant dyes (d) disperse dyes
8. What reacts with an aldehyde or ketone to produce an oxime?
- (a) an amine (b) hydrazine (c) hydroxylamine (d) semicarbazide
9. What is the name of the simplest amino acid  $H_2N-CH_2-COOH$ ?
- (a) leucine (b) glycine (c) alanine (d) valine
10. Name the organic functional group forms the peptide bond of proteins.
- (a) ether (b) ester (c) amide (d) acetal

PART - B (5 x 2 = 10 Marks)

11. What is an esterification reaction? Give the reaction.
12. Differentiate Friedel craft alkylation and Friedel craft acylation with suitable examples.
13. Bring out the differences between addition and condensation polymerization.
14. How congo red dye is synthesized? Write down the reaction.
15. Define peptide linkage. Draw the structure of dipeptide.

PART - C (5 x 16 = 80 Marks)

16. (a) Discuss the reaction mechanisms of the following reactions.
- (i) Halogenation of benzene (8)  
(ii) Nitration (8)
- Or
- (b) (i) Explain briefly the acid catalysed esterification with mechanism. (8)  
(ii) Give a brief account on oxidation – reduction reactions with examples. (8)

17. (a) Outline the reactions and its mechanism of the following reactions.

(i) Aldol condensation (8)

(ii) Reimer-Tiemann reaction (8)

Or

(b) (i) Discuss briefly the addition of HBr on alkene in the presence of peroxide. (8)

(ii) Write and explain the benzoin condensation reaction with mechanism. (8)

18. (a) (i) Write a short note on allylic bromination with N-Bromo succinimide reactions. (8)

(ii) Describe the thermal halogenation of alkane using chlorination of ethane as an example. (8)

Or

(b) Illustrate the estimation of following organic compounds.

(i) Aniline (8)

(ii) Glucose (8)

19. (a) Discuss the synthesis of alcohols and carboxylic acids using different types of synthetic processes. (16)

Or

(b) Explain the synthesis and uses of methyl orange and malachite green dye. (16)

20. (a) Give a short account on the following.

(i) Amino acid classifications (8)

(ii) Denaturation of proteins (8)

Or

(b) Outline any two methods of synthesis of amino acids with suitable examples. (16)

