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RN-6123

B. E. - II (Sem. III) (Chemical) Examination

May / June - 2010

Engg. Chemistry - II

(Organic Chemistry)

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दृशविवेक निशानीवाणी विगतो उत्तरवडी पर अवश्य लखवी.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
B. E. - 2 (Sem. 3) (Chemical)

Name of the Subject :
Engg. Chemistry - 2

Subject Code No. : **6 1 2 3** Section No. (1, 2,.....): **1&2**

Seat No. :

Student's Signature

- (2) Question 1 and 4 are **compulsory** and carries **20** marks each.
- (3) Question 2, 3 and 5, 6 carries **15** marks each.
- (4) Answer to the **two** sections should be written in **separate** answer books with figures and mechanism wherever necessary.
- (5) At wts. H=1, C=12, N=14, O=16, S=32, Br=80, Cl=35.5, Na = 23, Ba = 137, Ag = 108.

SECTION - I

- 1 (a) Fill in the blanks : **10**
- (i) The boiling point of an organic liquids if available in small quantity is usually determined by _____ method.
- (ii) In copper wire test the halogens presence in an organic compound usually gives _____ colour flame.
- (iii) The process of conversion of solid to gases directly on heating is called _____.
- (iv) A molecule is said to be chiral if it cannot be _____ on it's mirror image.
- (v) Diazotisation reaction can be effectively done with the help of _____ and _____ 0-5°C.

- (vi) As per IUPAC name Acetamide is known as _____.
- (vii) Sulphanilamide is used as a sulpha drug due to its _____ medicinal properties.
- (viii) Criteria of purity of liquid is usually determined by its sharp _____.
- (ix) _____ isomeric aromatic hydrocarbon are possible for C_2H_6O .
- (b) Answer the following : **10**
- (i) Explain in brief the combustion method for estimating carbon and hydrogen.
- (ii) Explain Geometrical isomerism in detail.
- 2** Answer the following : (any **three**) **15**
- (i) Show the optical isomerism in lactic and tartaric acid.
- (ii) Explain :
- (a) Vacuum distillation
- (b) Sublimation.
- (iii) Write the preparation, properties and uses of :
- (a) Acetaldehyde
- (b) Phenol.
- (iv) Write in detail about primary, secondary and tertiary alcohols.
- 3** Answer the followings : (any **three**) **15**
- (i) Write a note on :
- (a) Steam distillation
- (b) Fractional crystallisation.
- (ii) Write the preparation, properties and uses of
- (a) Citric acid
- (b) α -naphthols.
- (iii) Define isomerism. Write in detail about structural isomerism.
- (iv) Explain the following qualitative test :
- (a) Phthalic anhydride test for phenol
- (b) Fehling test for aldehyde
- (c) Mulikan barker test.

SECTION - II

- 4 (a) Fill in the blanks : 10
- (i) Covalent bonds are formed by mutual _____ of electrons.
 - (ii) Phenyl cyanide on acidic hydrolysis gives _____.
 - (iii) Cummene process is used to prepare _____.
 - (iv) Heterocyclic fission of an organic compound forms _____ and _____.
 - (v) As per IUPAC nomenclature the CH_3COCl is name as _____.
 - (vi) The full form of SN_1 reaction is _____.
 - (vii) In reaction mechanism the attacking reagents are named as a _____ and _____.
 - (viii) Organic compounds consisting hetero atoms other than carbon are known as _____ compounds.
- (b) Answer the following : 10
- (i) Discuss the formation of Grignard Reagent and the precaution to be taken place within?
 - (ii) Explain electrophilic substitution reaction with mechanism.
- 5 Answer the following : (any five) 15
- (i) Explain nitration with mechanism.
 - (ii) Write the penetration, properties and uses of salicylic acid.
 - (iii) Discuss what is peroxide effect and explain its importance in organic reactions.
 - (iv) Toluene $\xrightarrow[\text{UV light}]{\text{Cl}_2}$ A $\xrightarrow{\text{Cl}_2}$ B $\xrightarrow{\text{Cl}_2}$ C
Identify product A, B and C.
 - (v) Classify the following groups as O/P or m-directing in an aromatic nitration reaction :
 - (i) $-\text{CH}_3$
 - (ii) $-\text{NH}_2$
 - (iii) $-\text{Cl}$
 - (iv) $-\text{COOH}$

- (vi) Write the preparation, properties and uses of resorcinol.
 (vii) Write the qualitative tests to detect the presence of acid and alcohol.

6 Answer the following : (any **three**)

15

- (i) Write the preparation (one), properties (two) and uses of (a) Cinnamaldehyde (b) Phloroglucinol.
 (ii) Write a note on :
 (a) Attacking reagent
 (b) Mesomeric effect.
 (iii) Write a note on different types of organic reactions.
 (iv) Write the structural formula of the following :
 (a) Citric acid
 (b) Iodoform
 (c) Acetophenone
 (d) Thiophene
 (e) Propyl methyl ether.
 (v) Give the IUPAC nomenclature of the following structures :

