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SARDAR PATEL UNIVERSITY
B.Sc. EXAMINATION MARCH-2016 (VIth SEMESTER)
SUBJECT: ORGANIC CHEMISTRY (US06CCHE01)

DATE : 28/03/2016

TIME : 02:30 pm to 5.30 pm

DAY : MONDAY

TOTAL MARKS : 70

Q.1: Choose the correct option for the following multiple choice questions.

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- i) (-)-Arabinose is converted into (+)-Glucose by
a) Hundson method b) Killani-Fisher synthesis c) Ruff Degradation d) Haworth synthesis
- ii) Which of the following is ketohexose sugar?
a) Maltose b) Glucose c) Fructose d) Starch
- iii) Electrophilic substitution reaction in phenanthrene occurs at ____
a) 3-position b) 9,10-position c) 1,3-position d) 9-position
- iv) Reduction of naphthalene in presence of Pt/H₂ gives ____
a) Decalin b) Tetraline c) 1, 4-dihydronaphthalene d) None
- v) Which of the following compound is acts as a dienophile in Diels Alder reaction.
a) Cyclohexene b) 1,3-butadiene c) 1,3-pentadiene d) Ethylene
- vi) Trans,cis,cis-2,4,6-octatriene upon thermal reaction gives ____
a) Trans-5,6-dimethyl-1,3-cyclohexadiene b) Cis-5,6-dimethyl-1,3-cyclohexadiene
c) 3,6-dimethyl-1,4-cyclohexadiene d) Trans-3,4-dimethyl-1,3-cyclobutene
- vii) Which of the following functional group acts as an independent chromophore?
a) -OH b) NH₂ c) -N=N- d) None
- viii) Which of the following dye is used as food dye.
a) Alizarin b) Methylene blue c) Picric acid d) Orange I
- ix) The process of transforming color to the substrate is called ____
a) Cross dyeing b) Dyeing c) Interaction d) Fastness
- x) The principal sugar in blood is ____
a) Glucose b) Sucrose c) Galactose d) Fructose

Q.2 : Answer the following questions (Any ten)

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- i) What are carbohydrates ? How they are classified ?
- ii) Explain : Osazone formation.
- iii) Write a note on Mutarotation.
- iv) Draw all resonance hybrid structures of anthracene.
- v) Sulphonation plays key role in chemistry of naphthalene.
- vi) Give the synthesis of 2-naphthyl amine from naphthalene.
- vii) Explain Suprafacial and Antarafacial modes of cycloaddition reaction.
- viii) Allylic system has a special stability. Explain
- ix) Give the difference between Exo and Endo.
- x) Define : a) Bathochromic effect b) Hypsochromic effect.
- xi) What are the requisites for a true dye.
- xii) Explain the term Pigment.

Q.3 : Answer the following questions

- a) (+)-Glucose is a pyranose and not furanose. 04
- b) Give the synthesis of (-)-meso Tartaric acid from (+)-Glucose. 03
- c) (+)-Lactose is a galactoside and not a glucoside. Explain 03

OR

Q.3 : Answer the following questions

- a) Discuss the host-guest relationship properties of cyclodextrin. How these property is contrast to a crown ether? Discuss the effect of cyclodextrin on chemical reaction. 04
- b) Give the synthesis of (+)-Mannose from (+)-Glucose. 03
- c) (+)-Sucrose is an invert sugar. 03

Q. 4 : Answer the following questions

- a) Nitration of naphthalene takes place exclusively at α -position and not at β -position. 04
- b) Give the synthesis of 1,7-dimethyl naphthalene from toluene. 03
- c) Give the name of few potent carcinogenic hydrocarbons and discuss how do they induce human cancer. 03

OR

Q. 4 : Answer the following questions

- a) Give the synthesis of 1,4,9-trimethyl phenanthrene from 1-methyl naphthalene and succinic anhydride. **04**
- b) Naphthalene contains two benzene rings fused together. Explain **03**
- c) What is the aromatization? Discuss its importance in synthesis and analysis of polynuclear aromatic compounds. **03**

Q.5 : Answer the following questions

- a) What are Electrocyclic reactions? Discuss Woodward – Hoffmann rules for electrocyclic reaction with suitable example. **04**
- b) Write a note on Cope rearrangement. **03**
- c) State and explain Huckel rule for cyclopropenyl cation, anion and free radical. **03**

OR

Q.5 : Answer the following questions

- a) [4+2] thermal cycloaddition takes place readily but photochemical is difficult. while [2+2] photochemical cycloaddition takes place easy but [2+2] thermal is difficult. Explain in detail. **05**
- b) Predict the product and give appropriate stereochemistry. **05**
- i) Trans,trans-2,4-hexadiene + heat \rightarrow ?
- ii) 2 moles cis 2-butene + light \rightarrow ?

Q.6 : Answer the following questions

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What is Fastness? Explain various Fastness properties. Also give the synthesis and applications of following from cheapest raw material.

- i) Saframine.
- ii) Disperse orange-13.

OR

Q.6 : Answer the following questions

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Discuss the role of chromophore and auxochrome in colour chemistry of dye using suitable illustrations. Also give the synthesis and applications of following from cheapest raw material.

- i) Dye used as an indicator.
- ii) Vat dye of Benzantrone class.

****The End****