Registration no: | | | | | | | | | | |

Total Number of Pages: 2 **MSc.I**
FCYC203

2nd Semester Regular Examination 2016-17
ORGANIC CHEMISTRY-I
BRANCH:Applied Chemistry
Time: 3 Hours
Max Marks: 70
Q.CODE:Z792

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 **Answer the following questions:** **(2 x 10)**

a) Write the structure of bicycle [5.2.0] nonane and 9-chloro-5-methyl spiro [3.5] nonane
b) Why is cycloheptatriene not aromatic?
c) Between acetic acid and monochloro acetic acid, which is more acidic and why?
d) How do you account for the acid character of Phenol?
e) Why is the boiling point of Trans But-2-ene less than that of Cis But-2-ene?
f) Discuss the structure of carbocation.
g) Write the mechanism of S_N1 reaction.
h) What do you mean by racemisation? Give an example.
i) What do you mean by epimer? Give an example.
j) Draw the Flying –Wedge model of staggered and skew conformation of ethane.

Q2 **a)** What do you mean by even alternant, odd alternant and non-alternant hydrocarbon? Give an example of even and odd alternant hydrocarbon. **(3+2)**
b) Write down the characteristic properties of aromatic compounds. **(3)**
c) Between cyclopropene and cyclopropenyl cation which one is aromatic and why? **(2)**

Q3 **a)** Write a note on hyperconjugation. **(5)**
b) What is inductive effect? On the basis of it compare the base strength of ammonia, methyl amine and aniline. **(1+2)**
c) Write the conditions of resonance. **(2)**

Q4 **a)** Write free radical mechanism for addition of HBr to propene in presence of benzoyl peroxide. **(3)**
b) Between benzyl and p-nitronitrobenzyl carbanion which one is more stable and why? **(2)**
c) What are singlet and triplet carbene? Which one of them is more stable? Explain the structure of singlet carbene . **(2+1+2)**

Q5 **a)** Discuss intermediate isolation method and kinetic method for the determination of mechanism of a chemical reaction. **(3+3)**

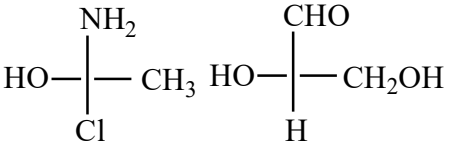
b) Give an example of a S_N2 reaction and write the mechanism such reaction. **(1+3)**

Q6 Write the mechanism of **(4+3+3)**
(i) Friedel-Craft alkylation of benzene
(ii) Addition of Br_2 to ethylene in presence of CCl_4
(iii) Unimolecular elimination reaction

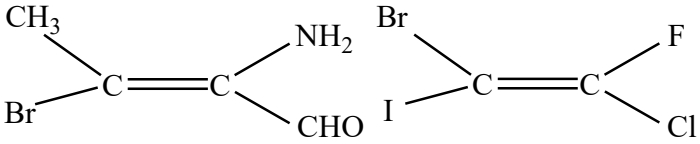
Q7 **a)** What do you mean by asymmetric carbon atom? Draw the structure of a compound having asymmetric carbon atom. **(1+1)**

b) Discuss optical isomerism in tartaric acid. **(4)**

c) Assign R and S configuration to the following compounds. **(2)**



d) Assign E and Z notation to the following compounds. **(2)**



Q8 **a)** Discuss geometrical isomerism in aldoximes and ketoximes. **(3)**

b) Draw different conformations of n-Butane and discuss their relativity stabilities. **(5)**

c) Between diaxial and diequatorial conformations of trans 1,2-dimethyl cyclohexane which one is more stable and why? **(2)**