Roll No.....

Total No. of Units : 04
Total No. of Printed Pages : 03

Code No. : 02/202

Second Semester Examination, May 2019

M.Sc. CHEMISTRY

Paper - II

CONCEPTS IN ORGANIC CHEMISTRY

Time : 3 Hrs. **Max. Marks : 80**

- Part A and B of each question in each unit consist of very short answer type questions which are to be answered in one or two sentences.
  Part C (Short answer type) of each question should be answered in 200-250 words.
  Part D (Long answer type) of each question should be answered within the word limit 400-450.

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Unit - I

Q.1 A. Define crown ether with examples. **(2)**

Q.1 B. Write the structure of annulenes and annulenes. **(2)**

Q.1 C. Write short note on cyclodextrins. **(4)**

OR

Differentiate between alternate hydrocarbons and non-alternate hydrocarbons.

Q.1 D. Explain bonding in fullerenes. **(12)**

OR

Explain the aromaticity of azulene and electron system by taking one example.

P.T.O.

Unit - II

Q.2 A. Why free radicals are paramagnetic? **(2)**

Q.2 B. Give the stereochemistry of free radical substitution reaction. **(2)**

Q.2 C. Explain the free radical mechanism of Hunsdiecker reaction. **(4)**

OR

Explain the free radical mechanism of oxidation of aldehydes to carboxylic acids.

Q.2 D. (i) Explain the mechanism of allylic halogenation with example. **(12)**

(ii) Write the product of bromination of 1-butene with NBS and indicate the major product.

OR

(i) Explain the reactivity of aromatic substrate in free radical substitution reactions.

(ii) Complete the following reaction with mechanism :

?

Unit - III

Q.3 A. What do you understand by stereospecific reaction? **(2)**

Q.3 B. Which conformation of cyclohexane is more stable and why? **(2)**

Q.3 C. What do you understand by asymmetric synthesis? Give its principle. **(4)**

OR

Write short note on conformation of sugars.

Q.3 D. Explain the effect of conformation on reactivity by giving two examples each of two acyclic compounds and cyclic compounds. **(12)**

OR

Explain (i) optical activity of spiranes and (ii) stereochemistry of sulphur compounds.

Unit - IV

Q.4 A. Write the names of different types of pericyclic reaction with example. **(2)**

Q.4 B. Define cycloaddition reaction with examples. **(2)**

Q.4 C. Explain symmetry in linear conjugated PI system. **(4)**

OR

Explain cyclisation of system.

Q.4 D. Explain conrotatory and disrotatory interconversion of cyclobutene $\rightleftharpoons$ butadiene with the help of correlation diagram. **(12)**

OR

What is sigmatropic rearangement? Explain and sigmatropic rearrangement.

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