



RN-8049

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

May / June - 2010

Organic Chemistry & Unit Process

(As per New GTU Syllabus)

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

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

Name of the Examination :

Name of the Subject :

Subject Code No. :     Section No. (1, 2,.....):

Seat No. :

Student's Signature

- (2) Q 1 and 4 are compulsory and carries 20 marks each.
- (3) Question 2, 3 and 5, 6 carries 15 marks each.
- (4) Answers to the two section should be written in separate answer books with figures and mechanism wherever necessary.

SECTION - I

- 1 (a) Fill in the blanks : 10
- (i) \_\_\_\_\_ is adopted as a standard anti knock fuel and has been assigned the octane number 100.
  - (ii) \_\_\_\_\_ and \_\_\_\_\_ have established that organic colouring matter on reduction gave colourless products which regained original colour on oxidation.
  - (iii) The stability of carbanion is increased if the electron \_\_\_\_\_ groups are introduced.
  - (iv) An elimination reaction is one in which the formation of \_\_\_\_\_ or \_\_\_\_\_ bond takes place.
  - (v) On reaction of acids with alcohols \_\_\_\_\_ are formed.

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[Contd...

- (vi) Alkyl halide on reaction with sodium hydrogen sulphides give \_\_\_\_\_.
- (vii) Usually the nitration is carried out with \_\_\_\_\_ and \_\_\_\_\_ mixture.
- (b) Explain different types of organic reactions with suitable examples in each reaction. **5**
- (c) Explain the preparation, properties and uses of carboxylic acid. Also explain the formation of different derivatives of carboxylic acids. **5**
- 2** Answer the following : (any **five**) **15**
- (a) Write the preparation of chlorobenzene with its properties.
- (b) Explain the formation of free radicals, carbonium ion and carbanion.
- (c) Write a note on Witt's theory of colour and chemical constitution.
- (d) Explain the preparation of synthetic petrol.
- (e) Write a note on Ribose Nucleic acid.
- (f) Explain cannizzaro reactions with mechanism.
- (g) Write the preparation of oxalic acid and its uses.
- 3** Answer the following (any **three**) **15**
- (a) Explain Nucleophilic substitution reaction with examples and its mechanism.
- (b) Write a note on composition of crude oil with proper identification of different fraction.
- (c) Write in detail the classification of dyes with examples.
- (d) Explain measurement of strength of acids with examples.
- (e) Define polymers. Classify it into different classes. Explain about biopolymers.

## SECTION - II

- 4 (a) Fill in the blanks : 10
- (i) Thiophene is manufactured by passing a mixture of \_\_\_\_\_ and \_\_\_\_\_ through tube containing  $\text{Al}_2\text{O}_3$  catalyst at 670 K.
  - (ii) Common soaps are \_\_\_\_\_ salts, of higher fatty acids.
  - (iii) \_\_\_\_\_ + NaOH  $\longrightarrow$  Soap + Glycerol.
  - (iv) \_\_\_\_\_ was first synthesized by Berthelot in 1873 bypassing acetylene through red-hot tube.
  - (v) Molecular formula of Glucose is \_\_\_\_\_.
  - (vi) Glucose is fermented by yeast to produce \_\_\_\_\_.
  - (vii) For oxidation reaction process we can use \_\_\_\_\_ as catalyst.
  - (viii) Polyethylene is available in the two forms of \_\_\_\_\_ and \_\_\_\_\_.
- (b) Explain conversion of higher aldose to lower aldose 5  
and lower aldose to higher aldose with suitable examples.
- (c) Discuss naphthalene and its derivatives in detail. 5
- 5 Answer the following : (any five) 15
- (i) Sulphonation and sulphation.
  - (ii) Five member ring compound with example
  - (iii) Chemical reactions of benzene
  - (iv) Soaps and detergents
  - (v) Chloroform
  - (vi) Formaldehyde
  - (vii) Glucose

**6** Answer any **three** :

**15**

- (i) Geometrical isomerism in tartaric acid
  - (ii) Chemistry of phenol
  - (iii) Chemistry of starch
  - (iv) Aldose to ketose and ketose to aldose
  - (v) Halogenation process.
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