(6 pages) **Reg. No. :** .....

Code No. : 30281 E **Sub. Code : JMCH 31/ SMCH 31**

B.Sc. (CBCS) DEGREE EXAMINATION, NOVEMBER 2020.

Third Semester

Chemistry — Core

ORGANIC CHEMISTRY – II

(For those who joined in July 2016 onwards)

Time : Three hours Maximum : 75 marks

PART A — ($10 \times 1 = 10$ marks)

Answer ALL questions.

Choose the correct answer :

1. Which of the following will undergo nucleophilic addition more readily?

   (a) Acetone (b) Formaldehyde

   (c) Acetaldehyde (d) None

2. The solvent used in MPV reduction is

   (a) t.butyl alcohol (b) isopropyl alcohol

   (c) ethyl alcohol (d) none

3. Oxalic acid when heated with glycerol at 110°C ———————— is formed.

(a) Allyl alcohol (b) Formic acid

(c) Carbon monoxide (d) None

4. The product formed by treating $RCONH_2$ with $Br_2/NaOH$

(a) RCN (b) RCH_2NH_2

(c) RCOOH (d) RNH_2

5. Reformatsky reaction takes place is presence of

(a) Zinc (b) Copper

(c) Barium (d) Silver

6. Frankland reagent is

(a) $(C_2H_5)_2Sn$ (b) $(C_2H_5)_2ZnI$

(c) $(C_2H_5)_2Zn$ (d) $(C_2H_5)_2SnI$

7. Antipyrine is

(a) Antipyretic (b) Antibiotic

(c) Antiseptic (d) Antifungal

8. Which forms oxime with hydroxylamine

(a) ketoform (b) enol form

(c) nitro form (d) acinitro form

9. Catalytic hydrogenation of phenol gives

(a) cyclohexane (b) decalin

(c) cyclohexanol (d) none

10. The most stable conformation of cyclohexane is

(a) boat (b) chair

(c) half chair (d) twist boat

PART B — ($5 \times 5 = 25$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Give the preparation and properties of Acrolein.

Or

(b) Explain Wolff-Kishner reduction with mechanism.

12. (a) Discuss the properties of oxalic acid.

Or

(b) Discuss the properties of succinic acid.

13. (a) Explain the preparation and reactions of diethyl zinc.

Or

(b) Give the preparation and uses of mustard gas and sulphonic.

14. (a) Explain amido-imido tautomerism.

Or

(b) Explain nitro-acinitro tautomerism.

15. (a) How will you synthesise civetone?

Or

(b) Discuss boat and chair conformations of cyclohexane.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain nucleophilic addition reactions of carbonyl compounds with HCN, $NaHSO_3$ and Grignard reagent.

Or

(b) Explain Aldol condensation, Crossed aldol condensation and Knoevenagal reaction with mechanism.

17. (a) Explain the action of heat on hydroxy acids and dicarboxylic acids.

Or

(b) Give the preparation, properties and structure of urea.

18. (a) How will you sunthesise the following compounds using Grignard reagent?

(i) Hydrocarbon

(ii) 2° alcohol

(iii) Phenols

(iv) Ketones

(v) 1° amines.

Or

(b) Give the preparation and properties of CH_3Li .

19. (a) How are the following compounds prepared from acetoacetic ester?

(i) Propionic acid

(ii) Succinic acid

(iii) Methyl propylketone

(iv) γ -keto valeric acid

(v) 4-Methyl Uracil.

Or

(b) How will you prepare the following compounds using Malonic ester?

(i) Isobutyric acid

(ii) Phenyl propionic acid

(iii) Acetone

(iv) Crotonic acid

(v) Barbituric acid

20. (a) Give the preparation and properties of cycloalkanes?

Or

(b) Explain Baeyer strain theory and Sachse-Mohr theory.

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