This question paper contains **4** printed pages]

B—42—2019

FACULTY OF SCIENCE

B.Sc. (First Year) (Second Semester) EXAMINATION

MARCH/APRIL, 2019

(CBCS/CGPA)

CHEMISTRY

Paper III

(Organic and Inorganic Chemistry)

(MCQ+Theory)

(Wednesday, 20-3-2019) **Time : 10.00 a.m. to 12.00 noon**

Time—2 *Hours* *Maximum Marks*—40

N.B. :— (*i*) Attempt *All* questions.

(*ii*) *All* questions carry equal marks.

(*iii*) Use OMR sheet for Question No. **1**.

(*iv*) Only one answer sheet should be used for Section A and B.

(MCQ)

1. Select the *correct* answer for each of the following multiple choice questions :

(*i*) Anthracene is aromatic, where value of n = ...

(A) zero (B) one

(C) two (D) three

(*ii*) Which of the following is meta directing group ?

(A) —OH (B) $—CH_3$

(C) —Cl (D) $—NO_2$

(*iii*) Resorcinol is ..... phenol.

(A) Monohydric (B) Dihydric

(C) Trihydric (D) Polyhydric

P.T.O.

(*iv*) Which of the following is more reactive towards nucleophilic substitution reaction ?

(A) Alkyl halide (B) Vinyl halide

(C) Chlorobenzene (D) All are equally reactive

(*v*) $CH_3—COOH + PCl_5 \rightarrow A$

A = ?

(A) $CH_3—Cl$ (B) $CH_3—\overset{\overset{O}{\|}}{C}—Cl$

(C) $CH_3—\overset{\overset{O}{\|}}{C}—CH_3$ (D) $CH_3—CH_2—Cl$

(*vi*) Phenol is also known as .....

(A) Citric acid (B) Tartaric acid

(C) Carbolic acid (D) Carboxylic acid

(*vii*) Silver salt of aromatic carboxylic acid on heating with bromine gives bromobenzene is ..... reaction.

(A) Hunsdiecker (B) Ullmann

(C) Balz-Schiemann (D) Gattermann

(*viii*) The ionization energy of oxygen is ..... than Nitrogen.

(A) higher (B) lower

(C) equal (D) none of these

(*ix*) Proton acceptors are bases according to .....

(A) Bronsted-Lowry concept (B) Lewis concept

(C) Arrhenius concept (D) Solvent system concept

(*x*) I^+ and I^- are ..... respectively.

(A) Hard acid and soft base

(B) Soft acid and hard base

(C) Hard acid and hard base

(D) Soft acid and soft base

(Theory)

Section A

(Organic Chemistry)

2. Answer any *two* of the following :

(*a*) Explain Friedel Craft acylation of benzene.

(*b*) Define the term phenol and give its classification.

(*c*) What is the action of the following on allyl iodide :

(*i*) $AgNO_2$

(*ii*) $\ddot{N}H_3$

(*iii*) KCN

(*iv*) NaOH

(*v*) Br_2.

(*d*) How will you prepare ethanamide from (*i*) acetyl chloride (*ii*) acetic anhydride and what is the action of HNO_2 on ethanamide.

3. Answer any *two* of the following :

(*a*) Explain ortho, para directing nature of —OH group.

(*b*) Write a note on Hauben-Hoesch reaction and give its mechanism.

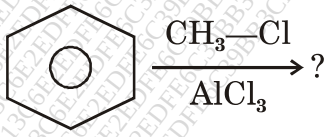
(*c*) How will you prepare vinyl chloride from :

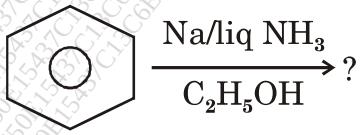
(*i*) 1, 2-Dichloroethane

(*ii*) Ethene ?

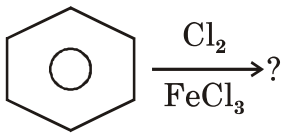
What is the action of Br_2 on vinyl chloride ?

(*d*) Predict the product of the following reactions :

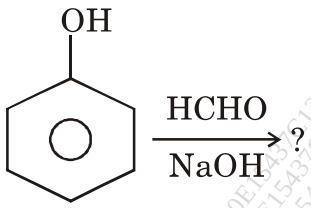
(*i*) 

(*ii*) 

P.T.O.

(*iii*) 

(*iv*) $CH_2=CH—Cl \xrightarrow{H—Br} ?$

(*v*) 

Section B

(Inorganic Chemistry)

4. Solve any *two* of the following :

(*a*) Expalin the variation in metallic character and MP and BP of *p*-block elements.

(*b*) (*i*) Give the variation in atomic radius and electronegativity of *p*-block elements.

(*ii*) Discuss Pearson's principle and its limitations.

(*c*) Define acids and bases according to solvent system and Lux-Flood concept.

(*d*) Give the applications of HSAB principle.