

This question paper contains 4 printed pages]

**Y—46—2019**

**FACULTY OF SCIENCE**

**B.Sc. (Second Year) (Fourth Semester) (Backlog) EXAMINATION**

**OCTOBER/NOVEMBER, 2019**

**CHEMISTRY**

**Paper VIII**

**(Organic and Inorganic)**

**(MCQ + Theory)**

**(Tuesday, 15-10-2019)**

**Time : 2.00 p.m. to 4.00 p.m.**

*Time—2 Hours*

*Maximum Marks—40*

*N.B. :— (i) Attempt All questions.*

*(ii) All questions carry equal marks.*

*(iii) Use separate answer-sheet (OMR Sheet) for Question No. 1.*

*(iv) Use black ballpoint pen to darken the circle of correct choice in OMR sheet.*

*(v) Use only one answer book for theory Section A and B.*

**MCQ**

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

(1) Racemic mixture of optically .....

(A) Active

(B) Inactive

(C) Ractive

(D) None of these

(2) Plane polarised light is affected by .....

(A) Identical molecules

(B) All polymers

(C) Chiral molecules

(D) All biomolecules

(3) Fructose contains .....

(A) an aldehyde group

(B) a ketonic group

(C) six hydroxyl group

(D) a cyanide group

P.T.O.

- (4) Starch is an example of .....
- (A) Monosaccharides (B) Disaccharides  
(C) Trisaccharides (D) Polysaccharides
- (5) Biuret is obtained by heating .....
- (A)  $\text{H}_2\text{N}-\text{C}-\text{NH}_2$  (B)  $\text{C}_6\text{H}_5\text{NH}_2$   
||  
O
- (C)  $\text{C}_6\text{H}_5\text{NO}_2$  (D)  $\text{C}_6\text{H}_5\text{N}_2\text{Cl}^+$
- (6) When diazomethane exposed to light to give .....
- (A) Methanol (B) Methane  
(C) Methylene (D) Mestylene
- (7)  $\text{OsO}_4$  reagent used for .....
- (A) Cis-hydroxylation (B) Trans-hydroxylation  
(C) Ozonolysis (D) Pyrolysis
- (8) The electronic configuration of chromium ( $Z = 24$ ) is .....
- (A)  $[\text{Ar}] 3d^4 4s^2$  (B)  $[\text{Ar}] 3d^5 4s^1$   
(C)  $[\text{Ar}] 3d^6 4s^0$  (D)  $[\text{Ar}] 3d^3 4s^1 4d^2$
- (9) Which of the following is radioactive element .....
- (A) Cf (B) Am  
(C) Pa (D) Cm
- (10) Which of the following is colourless .....
- (A)  $\text{Na}^{+3}$  (B)  $\text{Pr}^{+3}$   
(C)  $\text{Ce}^{+3}$  (D)  $\text{Lu}^{+3}$

**Theory****Section A : Organic Chemistry**

2. Answer any *two* of the following :

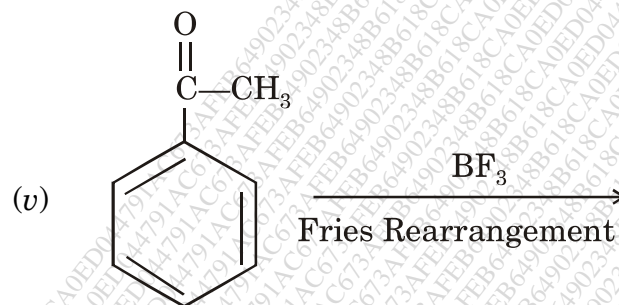
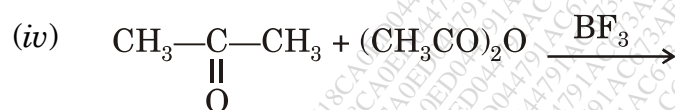
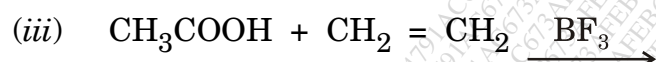
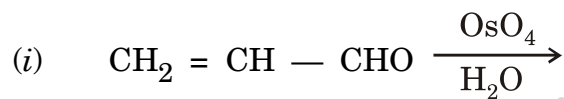
- (a) What is Geometrical Isomerism ? Write E and Z form of :
- Maleic and Fumaric acid
  - Benzaldoxime.
- (b) What is Mutarotation ? Give its mechanism.
- (c) What is the effect of  $-\text{CH}_3$ ,  $-\text{OCH}_3$  and  $-\text{NO}_2$  groups on basicity of aniline ?
- (d) How will you prepare  $\text{SeO}_2$  from metallic Se ? What is the action of  $\text{SeO}_2$  on the following :
- $\text{CH}_3\text{CHO}$
  - $\text{C}_6\text{H}_5-\text{C}-\text{CH}_3$   
||  
O
  - Cyclohexanone
  - $\text{CH}_3\text{COOH}$

3. Answer any *two* of the following :

- (a) What is Diastereoisomers ? Write R and S forms of :
- Glyceraldehyde
  - Z-bromobutane.
- (b) How will you convert fructose to glucose ?
- (c) How will you prepare urea from  $\text{CO}_2$  ? What is action of following on urea ?
- $\text{SOCl}_2$
  - Heat
  - Hydrazine
  - Acetyl chloride.

P.T.O.

(d) Predict the products :



### Section B : Inorganic Chemistry

4. Answer any *two* of the following :

- Describe general characteristics of *d*-block elements.
- Write the compounds and complexes of cadmium with variable oxidation state.
- Explain in brief the extraction of uranium from pitchblend by acid digestion method ?
- What is lanthanide contraction ? Give its consequences.