B.A. / B.Sc. SEMESTER 3 EXAMINATION, 2020
FAKIR CHAND COLLEGE CENTRE (551)

INSTRUCTIONS FOR CANDIDATES

READ ALL THE INSTRUCTIONS CAREFULLY BEFORE WRITING ANSWERS

1. Total **TIME OF EXAMINATION: 2 HOURS (30 Mins. For Each Paper)**
2. **A) Question Paper Comprises Of FOUR Separate Questions – CC5 (10 Marks), CC6 (10 Marks), CC7 (10 Marks)AndSEC-A2 (10 Marks).**

   B) CANDIDATES MUST HAVE TO ANSWER CC5, CC6, CC7 AND SEC-A2 SEPARATELY IN FOUR SEPARATE PAGES [EACH IN A A4-SIZED PLAIN PAPER).

   C) ON EACH PAPER CLEARLY MENTION ROLL NO., UNIVERSITY REG. NO. AND PAPER NO. ON TOP OF THE PAGE AND THEN BELOW WRITE ONLY THE CHOSEN OPTIONS AGAINST CORRESPONDING QUESTION NUMBERS *(For Example, If Option 'A' Is Correct For Q.1 Then Write Q.1 – A)*].

   D) Then Candidates Have To Prepare FOUR SEPARATE PDF FILES By Scanning Each Of The FourAnswer Scripts Clearly [Give File Names As'University Roll No.(Paper No.)' Format (Like 193551-XX-XXXX(CC5), 193551-XX-XXXX(CC6), 193551-XX-XXXX(CC7) And 193551-XX-XXXX(SEC-A2)]

   E) Finally, Upload The Four Files One By One In The Stipulated Places Of The Google Form before Submission Of The Form.
3. Use **ONLY BLACK INK** For Writing Your Answers
4. Give **AT LEAST 1CM MARGINS** In All The Four Sides Of Each Page

2020
B.A. /B.Sc. Semester 3 Examination
University of Calcutta
CHEMISTRY – HONOURS
INTERNAL
Paper: CC5 **F.M. 10**

FAKIR CHAND COLLEGE CENTRE (551)

Choose The Correct Answer: **1x10=10**

1. Identify whether they are extensive or intensive: (i) Free energy (ii) molar enthalpy (iii) heat capacity
   a) all intensive b) (i, iii) intensive (ii) extensive c) (i, ii) intensive (iii) extensive
   d) (i, iii) extensive (ii) intensive

2. If 1 (Molal) aqueous solution of an alcohol has a vapour pressure of 17.222 mm of mercury at 20^0C and in that temperature vapour pressure of pure water is 17.535 mm. then activity of pure water in the given solution is
   a) 0.982 b) 0.892 c) 0.928 d) 0.829

3. At inversion temperature, the value of Joule Thomson coefficient, μ_{JT} is
   a) > 0 b) 0 c) < 0 d) 1

4. At 298K pH of the 0.10 (M) Sodium Acetate is (Given, $K_w = 1\times10^{-14}$, K_a for Acetic acid = 1.8×10^{-5})
   a) 8.87 b) 8.78 c) 9.11 d) 7.88

5. When a Glass electrode is immersed in an aqueous solution the developed potential is
   a) a nonlinear function of H^+ ion b) a linear function Na^+ ion c) a linear function of H^+ ion
   d) a linear function of both H^+ and Na^+ ion

6. Which one is the buffer solution?
   a) 10 ml 0.4N acetic acid + 10 ml 0.4N NaOH, b) 5 ml 0.4N acetic acid + 10 ml 0.4N NaOH,
   c) 10 ml 0.4N acetic acid + 5 ml 0.4N NaOH, d) None of these

7. In pH metric titration curve of CH_3COOH against NaOH, buffering action will be maximum
   a) Near half equivalence point b) at equivalence point c) at ¼ neutralisation point
   d) after addition of 2 drops of NaOH

8. How many inflection points will be observed in conductometric metric titration curve when HCl and acetic acid mixture is titrated with NaOH solution?
   a) 1 b) 2 c) 3 d) no inflection point at all

9. J-T cooling occurs in case of
   a) Ideal gases b) both ideal and real gases c) real gases with temp. > inversion temp.
   d) real gases with temp. < inversion temp.

10. When Benzoic acid is distributed between water and benzene having concentration C_1 & C_2 respectively, then the distribution coefficient, K_D will be
    a) $\frac{C_1}{C_2}$ b) $\frac{C_1}{\sqrt{C_2}}$ c) $\frac{\sqrt{C_1}}{C_2}$ d) $\sqrt{\frac{C_1}{C_2}}$

2020
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CHEMISTRY – HONOURS
INTERNAL
Paper: CC6
F.M. 10

FAKIR CHAND COLLEGE CENTRE (551)

Choose the Correct Answer: **1x10=10**

1. Silicones are
   a) organo-silicon polymers having R_2SiO unit as the basic building block
   b) organo-silicate polymers having R_2SiO unit as the basic building block
   c) organo-silicate polymers having R_2SiOH unit as the basic building block
   d) organo-silicon polymers having R_3SiO unit as the basic building block

2. Inorganic benzene is
   a) B_2O_3 b) $(BN)_x$ c) BN d) $B_3N_3H_6$

3. The structure of XeF_4 is
   a) square pyramidal b) square planar c) linear d) trigonal bipyramidal

4. Neon is widely used
   a) in metallurgy b) in meteorological balloons c) in electronics d) in radiation therapy

5. Which among the following is not a double salt?
   a) ferric alum b) potassium ferrocyanide c) mohr's salt d) chrome alum

6. Which is not a characteristics of BeH_2 ?
   a) It is an amorphous white solid. b) It is a polymeric compound.
   c) It doesn't undergo rapid hydrolysis by acids. d) It exhibits fluxional behaviour.

7. Iodine is more soluble in water in the presence of iodide salt
   a) due to the formation of I_3^- b) due to the formation of IO_3^-
   c) due to covalent nature of iodide salt d) due to ionic nature of iodide salt

8. Which among the following is an ambidentate ligand?
   a) chloride ion b) hydroxide ion c) nitrite ion d) phosphate ion

9. According to the Mulliken scale
   a) electronegativities of elements are related to their bond energies.
   b) average of ionisation potential and electron affinity is a measure of electronegativity.
   c) electronegativity is related to the electric field at the surface of an atom.
   d) electronegativity is related to polarizability of an atom.

10. The relativistic effect contributes to
    a) lanthanide contraction b) inert pair effect c) increased reactivity d) decreased reactivity

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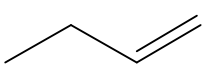
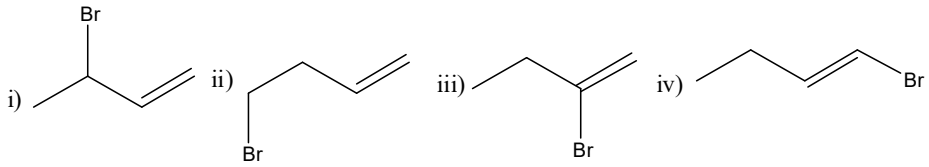
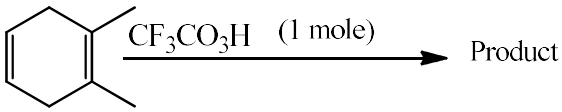
CHEMISTRY – HONOURS
INTERNAL
Paper: CC7
F.M. 10
FAKIR CHAND COLLEGE CENTRE (551)

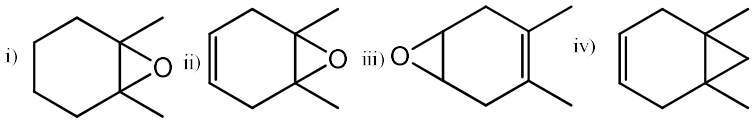
Choose the Correct Answer: **1x10=10**

1.  NBS → A ; Product A is

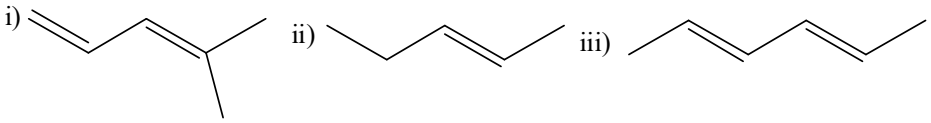


2. Identify the product-

 CF_3CO_3H (1 mole) → Product



3. Ozonolysis of an organic compound results one mole of glyoxal and two moles of acetaldehyde. The correct structure of the compound is-



iv) none of these

‘

4. Identify the reagent of Birch reduction-

i) SeO_2 ii) Na/ liq. NH_3 iii) $KMnO_4$ iv) $Pd/CaCO_3$, H_2

5. Identify the product-

CH_3CHO $\xrightarrow{Al(OEt)_3}$ Product

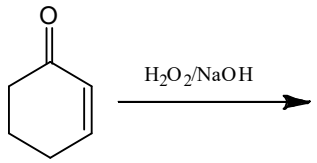
i) CH_3COOEt ii) CH_3COOH iiii) CH_3COCH_3 iv) OHC-CHO

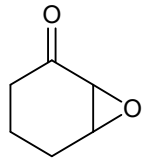
6. Identify the product-

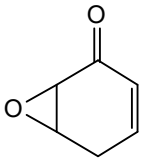
PhCHO $\xrightarrow{\text{Alcoholic KCN}}$ Product

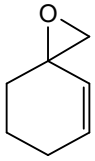
i) PhCH(OH)CN ii) PhCOOH iii) $PhCH_2OH$ iv) PhCOCH(OH)Ph

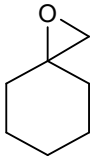
7. Identify the product-



i) 

ii) 

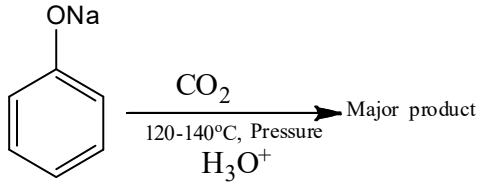
iii) 

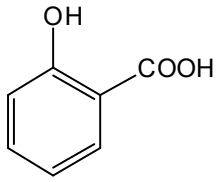
iv) 

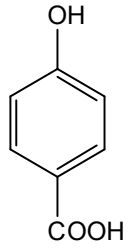
8. Identify Corey-House reagent-

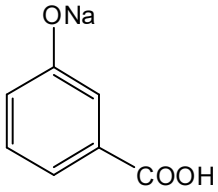
i) R_2CuLi ii) R-Li ii) RMgX iv) PCC

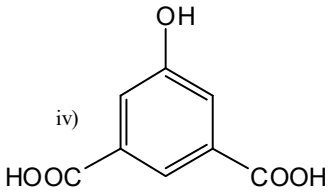
9. Identify the major product-



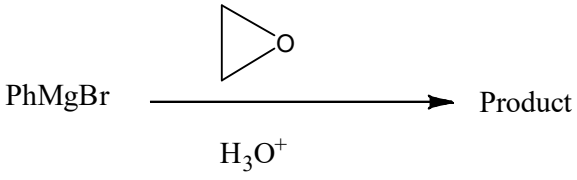
i) 

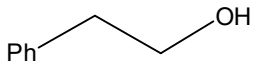
ii) 

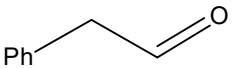
iii) 

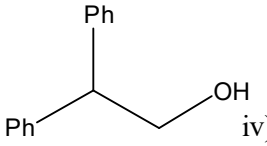
iv) 

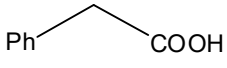
10. Identify the product-



i) 

ii) 

iii) 

iv) 

2020

B.A. /B.Sc. Semester 3 Examination

University of Calcutta

CHEMISTRY – HONOURS

INTERNAL

Paper: SEC-A2

F.M. 10

FAKIR CHAND COLLEGE CENTRE (551)

Choose The Correct Answer: **1x10=10**

1. Helicase belongs to the enzyme class
   a) Hydrolases b) Proteases c) Isomerases d) Lyases

2. Malonate is a competitive inhibitor of
   a) Succinate Dehydrogenase b) Protein Kinase c) Alkaline Phosphatase
   d) Alcohol Dehydrogenase

3. In plasma membrane, carbohydrates of glycoproteins reside on
   a) extracellular surface b) intracellular surface
   c) both extracellular and intracellular surfaces d) no glycoprotein in plasma membrane

4. The carbohydrates of glycoproteins function in
   a) cell-cell recognition b) cellular respiration c) energy power house of cell
   d) Cellular nutrition

5. In lipid bilayer structure the outer core is
   a) non-polar b) polar c) may be polar or non-polar d)neutral

6. One of the main components of liposomes is
   a) Glycoproteins b) Lipoproteins c) Phospholipids d) Carbohydrates

7. Reverse cholesterol transport is one of the main functions of
   a) LDL b) Chylomicron c) HDL d) VLDL

8. The subunits of nucleic acids is known as
   a) Nucleotides b) Nucleosides c) Purine bases d) Ribose

9. The stability of the tertiary structure of proteins is provided by
   a) H-bonding b) Disulphide bridge c) Electrostatic Interaction
   d) All of the above

10. If a protein is denatured then
    a) Its primary structure breaks down b) Its primary structure remains unchanged
    c) Its secondary structure remains unchanged d) Its component amino acids are also disintegrated