

Burdwan Raj College

Department of Chemistry

Internal Assessment: Home Assignment

(To be Submitted to designated email id mentioned below by 13th November 2020)

Semester: IV; Subject: Chemistry (Hons); Paper: CC 8

Send your assignments to (email id): brchemsem4h@gmail.com

1. Answer the following questions: (2X5 = 10)
- (a) Derive the Clausius-Clapeyron equation starting from Clapeyron equation.
 - (b) Calculate the osmotic pressure of an aqueous solution containing 1 gr of sucrose and 1 gm of glucose per dm³ at 300 K.
 - (c) Plot C_p v/s T for 1st order and 2nd order phase transitions.
 - (d) Write down the Debye-Huckel limiting law explaining each term.
 - (e) How liquid junction potential is developed – explain briefly.

Semester: IV; Subject: Chemistry (Hons); Paper: CC 9

Send your assignments to (email id): brchemsem4h@gmail.com

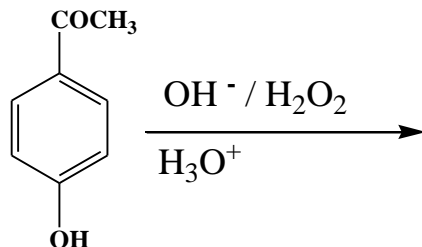
1. Answer the following questions: (2X5 = 10)
- (a) Define double and complex salt with example.
 - (b) Write the basic postulates of Werner's coordination theory and explain how this theory signifies the new horizon in this field.
 - (c) Is there any geometrical isomer of Td structure? Why?
 - (d) Give an example of an optically active pure inorganic compound of Oh-complex (with drawing).
 - (e) Give an example of optically active square planar complex (with drawing).

Semester: IV; Subject: Chemistry (Hons); Paper: CC 10

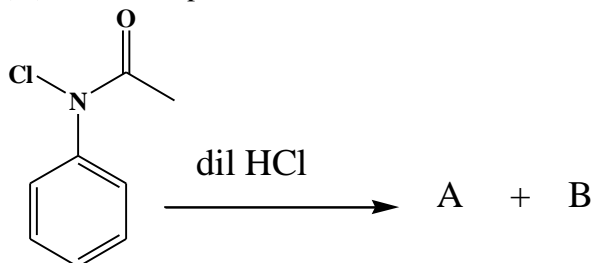
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1. Answer *any two (02)* of the following questions: (5 x 2 = 10)
- (a) (i) Give all the products when cyclobutylamine is treated with nitrous acid.
(ii) Show how a nitrene intermediate could be formed in the Lossen, Curtius and Schmidt reactions. 2+3
 - (b) (i) How would you prepare 2-Nitro phenylacetic acid using Arndt-Eistert Synthesis.

(ii) Give the mechanism:

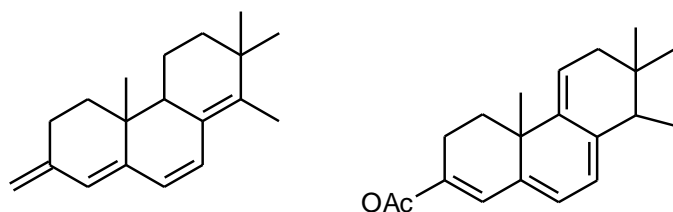


(iii) Predict the products:



2+1.5+1.5

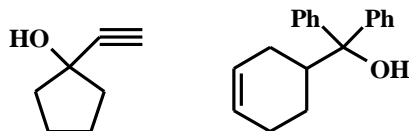
(c) (i) Calculate the λ_{max} values for the following structures:



(ii) Which amongst the following nuclei will have zero magnetic moment?

$^2\text{H}_1, ^{14}\text{N}_7, ^{13}\text{C}_6, ^{16}\text{O}_8, ^1\text{H}_1$ (1.5+1.5) +2

(d) Show the retrosynthetic analysis of the following compounds and carry out the synthesis.



2.5 x 2

Procedure of Appearing in the Internal Examination:

1. Download the question paper from the "online examination" section of the College portal: www.burdwanrajcollege.ac.in
2. Write your assignment on blank white A4 size papers.
3. The assignment must carry the following details of the student:
 - a. Name of the Student
 - b. University Roll Number
 - c. University Registration Number
 - d. Name of the Paper
 - e. Mobile Number of the Student
4. Examinees will have to submit their own hand-written answer scripts electronically to the mail id specified by the College in a single pdf file.
5. On the subject-line of the mail write your Name and University Roll No.