Reg.No.

S.No. 316 BATCH: 87-2016

90

END OF SEMESTER EXAMINATIONS, NOVEMBER - 2018
GENERAL CHEMISTRY - IV
SUBJECT CODE: 11UACH04

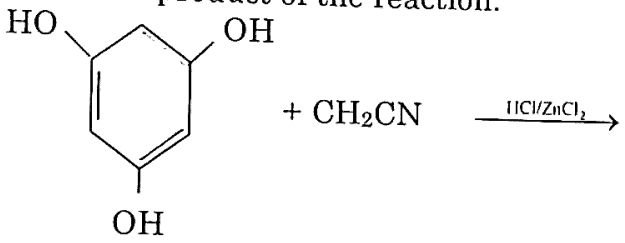
MAJOR : B.SC (CHEMISTRY)
TIME : 3 HOURS

SEMESTER : IV
MAX.MARKS: 75

SECTION – A (10 X 1 = 10)

Answer ALL the questions:

1. Why transition elements do shows variable oxidation state?
2. How do you explain anomalous electronic configuration of $Cu(4S^{1}3d^{10})$?
3. Draw the structure and give the IUPAC name for any two dihydric phenols.
4. Give the product of the reaction.



5. What is Jones-reagent?
6. Name the product of cleavage of pinacol with lead tera-acetate.
7. What are the Criteria for phase equilibrium?
8. Define chemical potential.
9. Express Raoult-s law for non-ideal solution in an equation.
10. How is activity related to activity-coefficient?

SECTION – B (5 X 4 = 20)

Answer ALL the questions:

11. a) Write a note on Application of CHEMDRAW. (4)

(OR)

b) Explain irregular variation of ionization first and second enthalpies transition elements. (4)

12. a) What is Riemer-Timamann reaction? Give the probable mechanism of Reimer-Tiemann reaction. (4)

(OR)

b) Discuss Gattermann reaction and its mechanism. (4)

13. a) Explain the order of basicity of primary, secondary and tertiary amines. (4).

(OR)

b) What is Hofman degradation reaction? Explain with suitable example. (4)

14. a) Derive Gibbs phase rule.(4)

(OR)

b) What is meant by relative lowering in vapour pressure? How does it enable determine molecular weight of non-volatile solute? (4)

15. a) Explain with diagram the upper critical solution temperature of phenol-wat system. (4)

(OR)

b) Give a brief account on basic principle of steam distillation.(4)

SECTION – C (5 X 9 = 45)

Answer ALL the questions:

16. a) Illustrate variable oxidation state of transition metals and their features. (9).

(OR)

b) Give an account on different data types in C programming. (9).

17. a) Describe the mechanism of the following reactions.

(i) Kolbe's reactions (4)

(ii) Houben-Hoesch reaction (5)

(OR)

b) Write the structure of the product of the following reactions.

(i) α – Napthal treated with alkaline KM_nO_4 (2)

(ii) Reduction of β - Napthal by Na/Isopentanol (2)

(iii) Oxidation of α – Napthal by H_2CrO_4 (2)

(iv) Explain why phenol is more acidic than ethanol? (3)

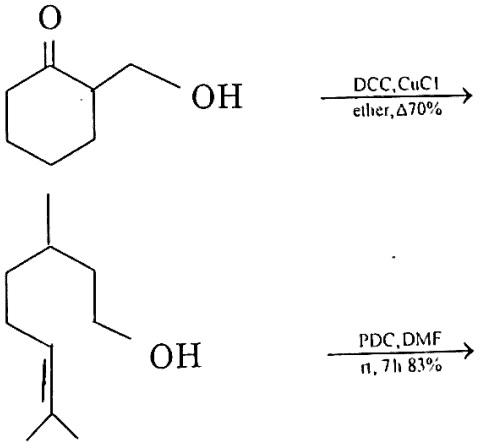
18. a) (i) Write a note on Gabriel synthesis of primary amine. (4)

(ii) Explain Hinsenberg method for separating primary, secondary, and tertiary amine. (5)

(OR)

b) (i)How methylamine is converted into Diazomethane? (2)

(ii) Complete the following reactions (2)



(iii) How can we separate primary secondary and tertiary amines by Hofmann's method? (5)

19. a) Explain the application of phase diagram for one component system taking water as example. (9)

(OR)

b) Derive – Clausius –Clapeyron equation (9)

20. a) Describe Azeotropes clearly with phase diagram of two examples. (9)

(OR)

b) Derive Nernst distribution law. (9)

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