



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – MATHEMATICS

THIRD SEMESTER – APRIL 2016

CH 3100 - ALLIED CHEMISTRY - THEORY

Date: 06-05-2016

Dept. No.

Max. : 100 Marks

Time: 01:00-04:00

Part-A

Answer ALL questions.

(10 x 2= 20)

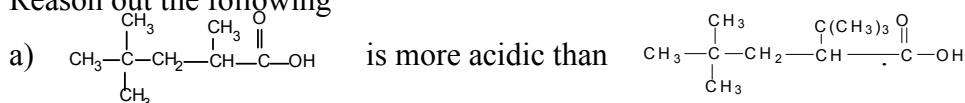
1. What is Gibb's phase rule?
2. Mention the structure and applications of neoprene.
3. State Henry's rule.
4. Draw the structure of a) thymine b) uracil
5. Name the following coordination compounds.
a) $[\text{Fe}(\text{CO})_5]$ b) $[\text{Pt}(\text{H}_2\text{NCH}_2\text{CH}_2\text{NH}_2)_2\text{Cl}_2]\text{Cl}_2$
6. Why are transition metal compounds coloured?
7. Justify the following statement "*O-nitrophenol is more volatile than p-nitrophenol*".
8. Why is tri-chloroacetic acid more acidic than acetic acid?
9. Mention the catalysts which are used in Contact and Haber's processes.
10. Define quantum yield.

Part-B

Answer any EIGHT questions.

(8 x 5= 40)

11. Write the mechanism of halogenation of benzene.
12. Reason out the following



- b) Alcohols are weaker acid than phenols. Why?
13. How will you determine pH by using a glass electrode?
14. What is chirality? How many chiral carbon atoms are present in a molecule of glucose?
15. Discuss the Werner's theory of coordination compounds.
16. Give a short note on the variable valency of transition elements.
17. Write the equation for manufacturing of polystyrene and PET. Mention their industrial uses.
18. Discuss the process of photosensitization.
19. Write short notes on galvanization and cathodic protections.
20. Describe the following a) Energy of activation. b) Order.
21. Explain the mechanism of replication of DNA.
22. Discuss the structure and functions of sex hormones.

Part-C

Answer any FOUR questions.

(4 x 10= 40)

- 23a. State Raoult's Law. Explain positive and negative deviation from Raoult's Law with an example.
b. Apply the phase rule to any one point, line and area of phase diagram of water. **(6+4)**
- 24a. Mention the important applications of genetic engineering.
b. Draw the conformational isomers of cyclohexane and explain. **(5+5)**
25. State the postulates of valence bond theory of coordination complexes and apply it to explain hybridization, shape and magnetic behaviour of $[\text{Cr}(\text{NH}_3)_6]^{2+}$
- 26a. How is nickel estimated spectrophotometrically?
b. Discuss any two methods of determining the order of the reaction. **(5+5)**
- 27a. Discuss the Watson-Crick model of DNA.
b. Write the important functions of cortisone and thyroxine. **(5+5)**
28. Write short notes on (a) Buna-S. (b) Classification of polymers. (c) Bakelite. **(3+4+3)**