TB145150A **Reg. No……....…**

Name…….....……

B. Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2016
SEMESTER V – CHEMISTRY
CHE5BOC – BASIC ORGANIC CHEMISTRY II

Time: Three Hours **Maximum Marks: 60**

PART A

I. Answer all questions. Each question carries 1 mark.

1. 1˚ and 2˚ nitroalkanes are soluble in alkali. Why?
2. What happens when benzene solutions of Picric Acid and Naphthalene are mixed and allowed to evaporate?
3. Explain the term red shift?
4. What are photosensitized reactions?
5. Define thermoplastic polymers with suitable examples.
6. What are drugs?
7. Fehling's Solution, Benedict's Solution and Barfoed's reagent have the same reactive ion. Which is the ion?
8. Tetramethylsilane is the customary standard used in NMR spectroscopy. Why?

(8 x 1 = 8)

PART B

II. Answer any six questions. Each question carries 2 marks.

9. Write a note on coupling reactions of diazonium chlorides.
10. Name a reagent that can be used to distinguish between a 1˚ amine and 3˚ amine? What is the chemistry involved?
11. p-nitro phenolate ion gives dark coloured solution in water or alkali. Why?
12. Differentiate between thermal and photochemical reactions?
13. What are polyesters? Give examples.
14. Baeyer's Strain theory can describe the stability of cycloalkanes. Explain?
15. How does soap detach dirt from skin or clothes?
16. What is the main component of Oil of Wintergreen. Give its structure?
17. What happens when cyclohexene is treated with NBS followed by treatement with alcoholic KOH?
18. What important bands do you expect in the IR spectrum of toluene?

(6 x 2 = 12)

PART C

III. Answer any four questions. Each question carries 4 marks.

19. How can you convert benzene diazonium chloride to a) Phenol b) nitrobenzene c) Iodobenzene d) Phenyl hydrazine
20. How are dyes classified on the basis of application. Give examples.

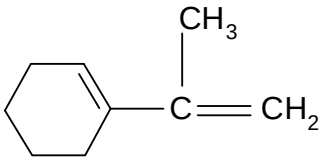
21. a) Explain mechanism of Paterno – Buchi reaction.
    b) Discuss the synthesis of PET? What is the type of reaction involved in the polymerisation process?
22. a) How are detergents classified? Give examples.
    b) Give the structure and mode of action of sulphapyridine.
23. 1 mole of a compound consumes two moles of periodic acid to form 2 moles of methanoic acid and 1 mole of methanol. What is the structure of the compound. Explain the reactions involved?
24. An organic compound C_7H_7Cl shows a strong IR band around 800 cm^{-1}, two bands at 1800 cm^{-1} and 1900 cm^{-1} (the band at 1900 cm^{-1} being stronger) and three IR bands at 3100, 2930 and 2860 cm^{-1}. Suggest a suitable structure for the compound.

(4 x 4 = 16)

PART D

IV. Answer any two questions. Each question carries 12 marks.

25. Write note on reduction of nitrobenzene under different conditions.
26. a) Indigo can be prepared from anthranilic acid. Give reagents and reactions to bring about this conversion.
    b) Discuss the synthesis of styrene, butadiene and styrene – butadiene rubber.
27. a) Discuss the method of preparation and applications of the following reagents –
    i) SeO_2 ii) Raney Ni
    b) i) Describe the term 'Chemotherapy'.ii) What are sulpha drugs?
    iii) Give the synthesis of sulphanilamide?
28. a) An organic compound having molecular formula C4H8Br2 gives the following NMR data. i) singlet at δ = 1.9 (6H), ii) singlet at δ = 3.87 (2H). Assign the structure of the compound.
    b) Explain Woodward's Rules for calculating λ_{max} for dienes?
    c) Calculate λ_{max} for the following compound?



(2 x 12 = 24)