E 3197 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, OCTOBER 2016

Fifth Semester

Core Course—BASIC ORGANIC CHEMISTRY—II

(Common for B.Sc. Chemistry Model I and Model II, B.Sc. Petrochemicals and B.Sc. Chemistry Environment and Water Management)

[2013 Admission onwards]

Time : Three Hours Maximum : 60 Marks

Part A

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

1. Arndt-Eistert reaction can be used to convert carboxylic acid into ———.
2. Phenyl hydrazine reduces Fehling solution and convert itself into ———.
3. Indigo is an example for ——— dye.
4. Chloroquine is used for the treatment of ———.
5. Name the product when secondary amine react with HNO_2.
6. What is SBR ?
7. What is Borsche's reagent ?
8. How many NMR signals do you expect for acetamide ?

(8 × 1 = 8)

Part B

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

9. Write the scheme to convert nitrobenzene to Azobenzene.
10. What are charged transfer complex ? Explain.
11. Explain wolf rearrangement.
12. How is Bismark brown prepared ?
13. What are polyurethane ? How are they prepared ?
14. What is Analgin ? What are its uses ?
15. Distinguish between soaps and detergents.
16. Explain the reaction of Tollen's reagent with acetaldehyde.

Turn over

17. Explain the different types of electronic transitions in UV/visible spectroscopy.
18. How will you distinguish acetaldehyde from acetone by their IR spectroscopy ?

(6 × 2 = 12)

Part C

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

19. Write note on phase transfer catalyst.
20. Discuss the synthetic applications of diazoacetic ester.
21. Write the synthesis and applications of Nylon 6 and Nylon 66.
22. Explain the relative stability of cyclohexane and cyclobutane.
23. Give the synthetic applications of Seoz and Ozone.
24. Name one compound each which shows (a) 1 NMR signal ; (b) 2 NMR signal ; (c) 3 NMR signal ; (d) 4 NMR signal.

(4 × 4 = 16)

Part D

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

25. (a) Explain Hinsberg's method for the separation of amines.
    (b) Explain the mechanism of Gattermann reaction, Gomberg reaction and Hoffmann Bromamide reaction.
26. (a) Discuss the important factors which influence the basic strength of alkylamines and arylamines.
    (b) Discuss briefly the relationship between colour and chemical constitution in organic dyes.
27. (a) Write short notes on :
        (i) Patterno-Buchii reaction.
        (ii) Photo Fries rearrangement.
    (b) Write the synthesis and applications of Bakelite and Nitrile rubbers.
28. (a) Sketch the PNMR spectra of ethanol. Explain the splitting of signals and their relative positions.
    (b) A compound with molecular formula $C_4H_8O_2$ gave the following NMR data :
        (i) Triplet δ = 1.2 ; (ii) Quartet δ = 4.0 ; (iii) Singlet δ = 1.97. Assign a structure to the compound.
    (c) Explain the principle of NMR spectroscopy.

(2 × 12 = 24)