

STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI-86
(For candidates admitted during the academic year 2019 – 20 and thereafter)
SUBJECT CODE: 19CH/MC/OC54
B.Sc. DEGREE EXAMINATION, NOVEMBER 2021
BRANCH IV- CHEMISTRY
FIFTH SEMESTER

COURSE: MAJOR CORE
PAPER: ORGANIC CHEMISTRY-III
TIME: 3 HOURS

MAX.MARKS: 100

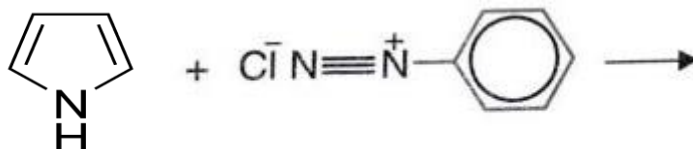
SECTION – A

Answer all the questions

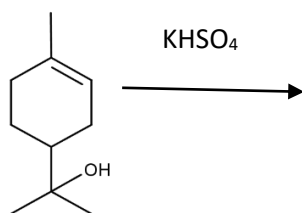
I Choose the correct answer

(15x2= 30 marks)

- In Hoffman rearrangement, amides are converted to primary amines with one carbon less than the parent amide by the action of _____.
(a) Sodium phosphate (b) Sodium hyphobromide (c) Sodium bromide (d) sodium bicarbonate
- Identify the product in the reaction below



- (a) 3-Phenylazopyrrole (b) 3-Phenylazoxypyrrole (c) 2-Phenylazoxypyrrole
(d) 2-Phenylazopyrrole
- Which of the glycosidic linkage is present in lactose?
(a) α -1,2 glycosidic linkage (b) α -1,4 glycosidic linkage (c) β -1,4 glycosidic linkage
(d) β 1,3 -glycosidic linkage
- Identify the product in the reaction given below.

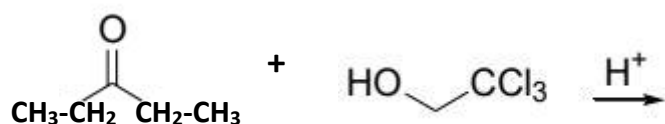


- (a) Limonene (b) Carvone (c) terpeniolene (d) p-Toluic acid
- Amines cannot be protected by _____.
(a) CBZ (b) BOC (c) PCC (d) 2,4-Dichlorobenzyl carbamate

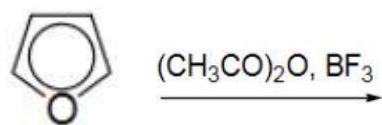
II. Fill in the blanks

- The pair of diastereomers which differ in the configuration of single carbon atom called _____.
- The intermediate formed in Curtius reaction _____.
- Nicotine isomethiodide on oxidation with potassium ferricyanide yields _____.

9. Give the product



10. Give the product



III. Match the following

- | | |
|----------------------|----------------------|
| 11. Maltose | p-cymene |
| 12. Citral | Piperidine |
| 13. Indole | Glucose and glucose |
| 14. Raffinose | bicyclic monoterpene |
| 15. α -pinene | Glucose and fructose |
| | Sesquiterpenes |

SECTION B

(5x8=40 Marks)

ANSWER ANY FIVE QUESTIONS

16. Explain the preparation of quinoline by Skraup's synthesis and isoquinoline by Bischler Napieralksi synthesis.
17. How will you convert glucose into fructose and fructose into glucose?
18. Elucidate the structure of Citral.
19. Give the mechanisms of benzilic acid and oxy-cope rearrangements.
20. Give the mechanism of Pinacol-Pinacolone rearrangement. Discuss its migratory aptitude.
21. a) Discuss the structural elucidation of glucose. Explain the ring size determination. (4)
b) Describe the mechanism of mutarotation. (4)
22. a) Compare the structure of Indigo, Indole and Isatin. (3)

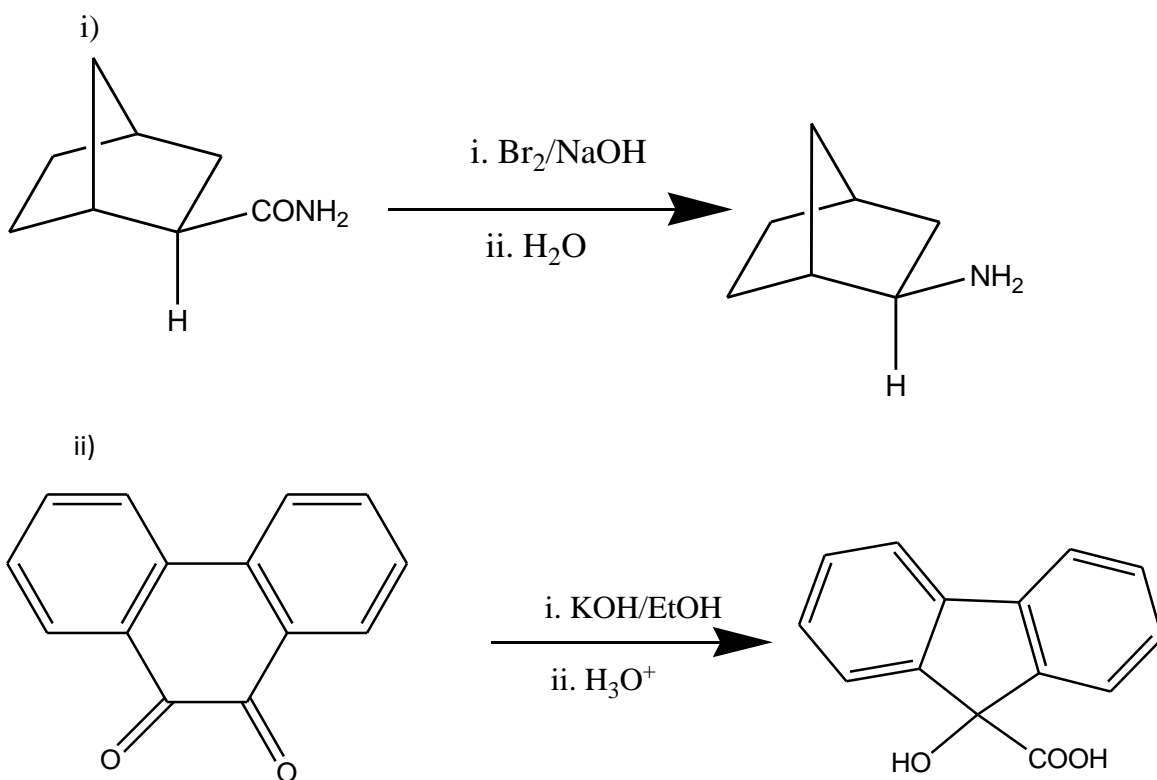
b) Draw the Haworth structure of Fructose, and Maltose. (5)

SECTION – C

(2x15=30Marks)

ANSWER ANY TWO QUESTIONS

23. a) Account for the following conversion: (5x2 =10)



b) Explain the total synthesis of Nicotine. (5)

24. a) Explain the protection and Deprotection of the following functional groups. (10)

i) $-\text{NH}_2$

ii) $>\text{C}=\text{O}$

b) Explain the exhaustive methylation method of degradation of an alkaloid. (5)

25. a) Give the structural elucidation of piperine. (10)

b) Explain the reactivity of Fructose with HIO_4 and $\text{C}_6\text{H}_5\text{NHNH}_2$. (5)
