M.Sc. Previous (Applied Chemistry) Examination, August/September 2008 Directorate of Correspondence Course

DCC App - Chem 1.03: ORGANIC CHEMISTRY (Freshers)

Time: 3 Hours

Max. Marks: 85

Note: 1) Answer any TEN questions from Part - A, TWO questions from Part - B and any THREE questions from Part - C.

- 2) Figures to the right indicate marks.
- 3) Repeaters answer any ONE questions from Part + B.

PART A

Answer any TEN of the following:

 $(2 \times 10 = 20)$

- 1. Account for the stability of trippenyl methyl the radical.
- 2. What are nitrenes? How are they generated?

EXAM

- 3. What is anomeric effect? Write the Haworth structures of α and β D-Glucose.
- 4. Write the IUPAC name with E and 2 more on.

5. Write the major and minor products in the following reaction.

P.T.O.



- 6. [18] Annulene is aromatic. Explain.
- 7. Give the appropriate products and give reason in the following reaction.

8. Write the product (s) in the following reaction.

Complete the reaction with mechanism.

- 9. Give one reaction involving carbene as intermediate.
- 10. Explain Hofmann degradation coaction.
- 11. Give synthesis of thiazole from α -haloketones.
- 12. 2°-amines are less basic than 3°-amines, give reason.
- 13. Write the Fisher projection and conformational structure of D-Mannose.
- 14. Give any two N-terminal and C terminal blocking agent.
- 15. What are the products obtained when cellulose is fully methylated followed by hydrolysis?

Answer any TWO of the following:

 $(10 \times 2 = 20)$

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- a) Discuss the conformational analysis of 1, 2 dichloroethane in vapour and liquid phase.
 - b) Describe the optical isomerism in tartaric acid.

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17.	a)	Explain the mechanism of electrophilic aromatic nitration with suitable examples.	5
	b)	Write the stereochemistry and mechanism of S_N^2 reactions.	5
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18.	a)	Elucidate the structure of maltose.	7
	b)	Give two biological importance of protein.	3
PART - C			
Anss	ver	any THREE of the following: \(\triangle\) (15×3=4	.=\
		any THREE of the following: (15×3=4	13)
19.	a)	Describe the chemical method for establishing the configuration of geometrical	
		isomers.	6
	b)	Give any four reactions involving carbocations.	5
	c)	Discuss the stability of cartanions.	4
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20	e)	Discuss the stereochemistry of elimination reaction	
20.			5
		Compare the basicity and aromaticity of pyrrole with pyridine.	5
	C)	What are amylose and amylopectin? How are they obtained from starch?	_
		Give the structure of amylose. 2008	5
21	. 1	Dingues and the same and same	_
41.		Discuss any three method of synthesis of amino acids.	6
	b)	Discuss the mechanism of the following reaction:	5
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		H ₃ C CH ₃	
		H ₃ C-N- base major + minor	

c) What is Hudson's rule? Explain with an example.

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22. a) Assign R and S notation for the following molecule.

b) Discuss the secondary structure of protein.

c) Write a note on electrophilic reactions of pyrimidine.

23. a) Describe the Huckel rule for aromaticity with suitable example.

b) Give any two methods of synthesis of huran.

c) Discuss the carbobenzoxy method of synthesis of peptides.

