D 72404 **(Pages : 2)** **Name.....**

Reg. No.....

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2014

(UG-CCSS)

Complementary Course—Chemistry

CH 3C 05—ORGANIC AND BIOCHEMISTRY

Time : Three Hours Maximum : 30 Weightage

Answer all **twelve** *questions.*
Each question carries a weightage of ¼.

I. **1** Which of the following is the strongest acid ?

(a) HCOOH. (b) CH_3COOH.

(c) $ClCH_2COOH$. (d) CH_3CH_2COOH.

2 Which of the following is a heterocyclic compound containing sulphur in the ring ?

(a) Furan. (b) Thiophene.

(c) Pyran. (d) Indole.

3 Addition of HBr to an unsymmetrical alkene in presence of a peroxide proceed through :

(a) Electrophilic addition. (b) Free radical addition.

(c) Nucleophilic addition. (d) None of these.

4 Deficiency of Vitamin C is the cause for the disease

(a) Scurvy. (b) Ricket.

(c) Beriberi. (d) Xerophthalmia.

5 Give an example of a neutral electrophile.

6 Of the two isomeric butenes which would show geometrical isomerism ?

7 How many Chiral carbon atoms are there in Tartaric acid ?

8 The purine bases present in RNA are adenine and _____

9 Name the enzyme which hydrolyses sucrose into glucose and fructose.

10 The monomer of the polymer Teflon is _____

11 Give the name of one thermosetting plastic.

12 Write one example for a steroid hormone.

(12 x ¼ = 3 weightage)

Turn over

(Short Answer Type)

Answer all **nine** *questions.*
Each question carries a weightage of 1.

II. 13 State Markownikoff 's rule with an example.

14 Give two examples for meta orienting substituents.

15 Draw the NMR spectrum of ethanol at high resolution.

16 How will you distinguish $CH_3CH_2CH_2OH$ and CH_3COCH_3 by IR spectroscopy ?

17 Draw the Newman projection formula for the staggered and eclipsed conformation of eth

18 What is meant by resolution ?

19 What are the monomers present in the synthetic rubber Buna N ?

20 What are biodegradable plastics ?

21 What are alkaloids ? Give *one* example.

(9 x 1 = 9 weighta

(Short Paragraph Questions)

Answer any **five** *questions.*
Each question carries a weightage of **2.**

III. 22 Explain hyperconjugative effect.

23 Explain the mechanism of dehydration of alcohol.

24 Give a short account of optical isomerism in Tartaric acid.

25 What are nucleosides and nucleotides ? Give examples.

26 What is meant by condensation polymerisation ? Give *one* example.

27 How Dacron fibres are obtained ?

28 State and illustrate Isoprene rule.

(5 x 2 = 10 weightage)

(Essay Questions)

Answer any **two** *questions.*
Each question carries a weightage of 4.

IV. 29 (a) How are amino acids classified ? Give example for each.

(b) Discuss the structure of proteins.

30 (a) Explain "Inductive effect". How it can be used to explain the basic strengths of methyl amine, dimethyl amine and trimethyl amine ?

(b) Discuss the mechanism of SN^{-} reaction.

31 (a) Write a note on asymmetric synthesis.

(b) Describe the general method of isolation of alkaloids.

(2 x 4 = 8 weightage)