2014

(6th Semester)

CHEMISTRY

TWELFTH (B) PAPER

Course No. : CHEM-364

(Natural Products)

Full Marks : 75

Time : 3 hours

(PART : B—DESCRIPTIVE)

(*Marks* : 50)

The figures in the margin indicate full marks for the questions

1. *(a)* What is Hofmann degradation? Discuss with suitable example. 4

(b) Give the structural formula of an indole alkaloid. 3

(c) What is nicotine? 3

OR

2. *(a)* Write in brief about menthol and terpenone and give the structural formula of pinene. 7

(b) What are terpenes and terpenoid? 3

3. *(a)* How is IR useful in determining the chemical structure of compound? 3

(b) Give the number of peaks obtain in NMR spectroscopy of the following compounds : 4½

(i) Benzene

(ii) Methane

(iii) Methanol

(c) What are the peaks observed in mass spectra of ethanol? 2½

OR

4. *(a)* How would you determine the following functional groups present in compound by chemical method? 5

(i) —CHO

(ii) —OH

(b) Discuss in brief about the study of chemical compound by other than chemical method. 5

5. *(a)* What is zwitterion? 3

(b) Draw the structures of two aromatic amino acids. 3

(c) Discuss the properties of peptides and proteins. 4

OR

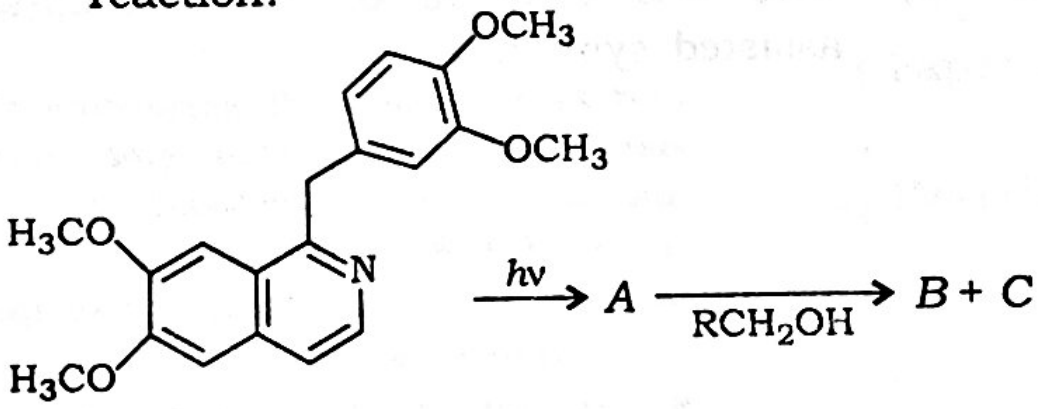
6. *(a)* What is carbohydrate? 2

(b) Discuss the D and L isomers of galactose and glucose. 5

(c) What is anomer? 3

7. *(a)* What is Wessely-Moser rearrangement? 3

(b) What is *A*, *B* and *C* in the following reaction? 7



OR

8. *(a)* How is plant-insect interaction effected by some chemicals? 4

(b) Discuss about defensive mechanism of insects with secretion of some chemicals. 6

9. (a) Discuss the enzyme catalysis with energy-profile diagram. 4

(b) What is Fischer hypothesis? 3

(c) What do you mean by enzyme active site? 3

OR

10. (a) How does enzyme catalysis differ with chemical catalysis? 3

(b) What is allosteric enzyme? 3

(c) Give one example of oxidoreductase assisted synthesis. 4

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2014

(6th Semester)

CHEMISTRY

TWELFTH (B) PAPER

Course No. : Chem–364

(Natural Products)

(PART : A—OBJECTIVE)

(*Marks* : 25)

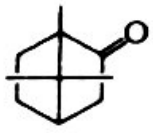
The figures in the margin indicate full marks for the questions

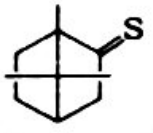
SECTION—A

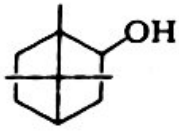
(*Marks* : 10)

Put a Tick (✓) mark against the correct answer in the brackets provided for it : 1×10=10

1. Camphor is

(a)  ( )

(b)  ( )

(c)  ( )

(d)  ( )

2. Alkaloids are

(a) acid-like ( )

(b) alkali-like ( )

(c) water-like ( )

(d) amphoteric ( )

3. Chromophores are

(a) N=O ( )

(b) C=C ( )

(c) N=N—C—O ( )

(d) All of the above ( )

4. TMS is

(a) CH_3SCH_3 ( )

(b) $(CH_3)_3Si$ ( )

(c) $(CH_3)_4Si$ ( )

(d) None of the above ( )

5. Peptide bond is backbone of

(a) protein ( )

(b) amino acid ( )

(c) carbohydrates ( )

(d) all organic compounds ( )

6. Morphine is

(a) $C_{17}H_{19}NF_3$ ( )

(b) $C_{17}H_{19}PO_3$ ( )

(c) $C_{17}H_9NO_3$ ( )

(d) $C_{17}H_{19}NO_3$ ( )

7. Pheromones triggers

(a) same species ( )

(b) all species ( )

(c) only itself ( )

(d) None of the above ( )

8. Enzymes are

(a) amino acids ( )

(b) proteins ( )

(c) carbohydrates ( )

(d) terpenes ( )

9. Enzyme active sites are

(a) not specific ( )

(b) specific ( )

(c) not take part in reaction ( )

(d) None of the above ( )

10. Monosaccharides is

(a) glucose ( )

(b) fructose ( )

(c) galactose ( )

(d) All of the above ( )

SECTION—B

(*Marks* : 15)

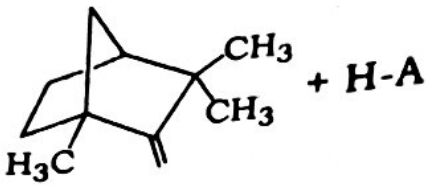
Answer the following questions : 3×5=15

1. Write in brief about biosynthesis of terpenes.

2. What are the classical methods used to determine the structure? How can it be used? Discuss with one example.

3. How can peptides be synthesized? What are the basic constituents used in synthesis of peptides?

4. Discuss the rearrangement of the following compound :



5. What is enzyme? Give one example of hydrolytic enzyme.

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