

2017

(6th Semester)

CHEMISTRY

TWELFTH (B) PAPER

Course No. : CHEM-364

(Natural Products)

Full Marks : 75

Time : 3 hours

(PART : B—DESCRIPTIVE)

(Marks : 50)

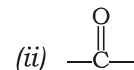
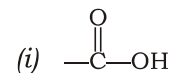
*The figures in the margin indicate full marks
for the questions*

1. (a) Explain biosynthesis of terpenes with suitable example. 4
- (b) What is isoprene rule? Draw the structure of menthol and comment on it. 3
- (c) Give the structural formula of an indole alkaloids. 3

OR

2. (a) Write the classification of terpenes with suitable example. 4
- (b) What are alkaloids? Give the names and structures of any two alkaloids. 4
- (c) What are terpenoids? 2

3. (a) How would you explain the presence of the following functional groups in a compound? 2×2=4

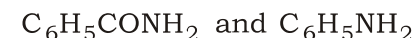


- (b) Sketch the NMR signals of the following : 2×2=4

(i) 1,1,2-trichloroethane

(ii) Toluene

- (c) How would infrared spectra of the following compounds differ? 2

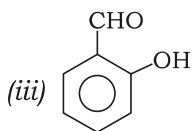
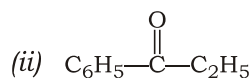
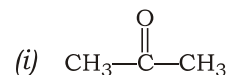


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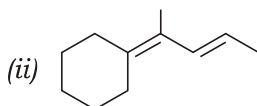
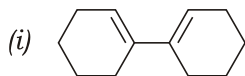
4. (a) What are the peaks observed in the mass spectra of 2-methyl butane? 2

(3)

- (b) Give approximate position of the characteristic infrared bands in the following compounds : $1 \times 3 = 3$



- (c) Predict the chemical shift for toluene. 2
- (d) Calculate λ_{\max} for the following compounds : $1\frac{1}{2} \times 2 = 3$



5. (a) How will you distinguish between glucose and fructose? 2
- (b) Give a suitable method for the synthesis of tripeptide by protecting amino group. 3
- (c) What is zwitterion? 3
- (d) Establish the structure of fructose. 2

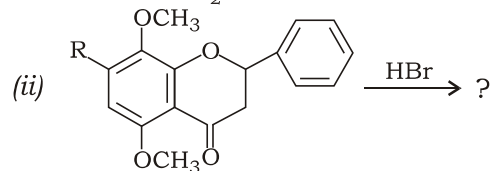
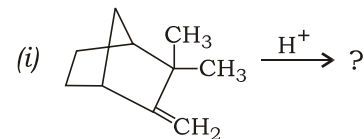
(4)

OR

6. (a) Discuss the properties of proteins. 3
- (b) How are α -amino acids prepared? 3
- (c) How will you convert aldohexose into aldopentose? 2
- (d) Discuss the cyclic structure of D-glucose. 2
7. (a) Write rearrangement reaction of morphine. 4
- (b) What are pheromones? Explain their functions with example. 3
- (c) Write in brief, plant-insect interaction. 3

OR

8. (a) Write a short note on defensive secretion in insects with some examples. 4
- (b) Complete the following reactions : $3 \times 2 = 6$



(5)

9. (a) What do you mean by enzyme-active site? 3
- (b) Explain the competitive inhibition of enzyme with suitable example. 3
- (c) Write a note on allosteric enzyme. 4

OR

10. (a) Write the characteristic functions of enzymes. 3
- (b) Explain irreversible enzyme inhibition with example. 3
- (c) Discuss enzyme specificity with example. 4

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Subject Code : CHEM/VI/12 (b)

Booklet No. A

Date Stamp

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To be filled in by the Candidate

DEGREE 6th Semester
(Arts / Science / Commerce /
.....) Exam., **2017**

Subject

Paper

INSTRUCTIONS TO CANDIDATES

1. The Booklet No. of this script should be quoted in the answer script meant for descriptive type questions and vice versa.
2. This paper should be **ANSWERED FIRST** and submitted within 1 (one) Hour of the commencement of the Examination.
3. While answering the questions of this booklet, any cutting, erasing, over-writing or furnishing more than one answer is prohibited. Any rough work, if required, should be done only on the main Answer Book. Instructions given in each question should be followed for answering that question only.

To be filled in by the Candidate

DEGREE 6th Semester
(Arts / Science / Commerce /
.....) Exam., **2017**

Roll No.

Regn. No.

Subject

Paper

Descriptive Type

Booklet No. B

*Signature of
Scrutiniser(s)*

*Signature of
Examiner(s)*

*Signature of
Invigilator(s)*

/423

CHEM/VI/12 (b)

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(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. Terpenes which contain 15-carbon atoms are
named as

(a) monoterpenes ()

(b) sesquiterpenes ()

(c) diterpenes ()

(d) triterpenes ()

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(2)

2. Among the following, which is pyridine alkaloid?

- (a) Nicotine ()
- (b) Piperine ()
- (c) Morphine ()
- (d) Quinine ()

3. Tollens' reagent test can be used in

- (a) phenols ()
- (b) amines ()
- (c) carboxylic acids ()
- (d) aldehydes ()

4. Electronic excitation takes place in

- (a) UV spectroscopy ()
- (b) infrared spectroscopy ()
- (c) NMR ()
- (d) All of the above ()

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(3)

5. Peptide bond is made up of

- (a) carboxylic acids ()
- (b) amino acids ()
- (c) mineral acids ()
- (d) None of the above ()

6. The number of asymmetric carbon atoms in the α -D-glucopyranose molecule is

- (a) two ()
- (b) four ()
- (c) three ()
- (d) five ()

7. Wessely-Moser rearrangement is specifically designed for

- (a) morphines ()
- (b) flavonoids ()
- (c) terpenoids ()
- (d) phenolic acids ()

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(4)

8. Pheromones trigger

- (a) all species ()
- (b) only itself ()
- (c) same species ()
- (d) None of the above ()

9. Enzyme acting on starch is

- (a) maltose ()
- (b) amylase ()
- (c) lactose ()
- (d) pepsin ()

10. The full form of NAD is

- (a) Nicotine Amide Dinucleotide ()
- (b) Nicotinamide Adenine Dinucleotide ()
- (c) Nicotinamine Adenine Dinucleotide ()
- (d) None of the above ()

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(5)

SECTION—B

(Marks : 15)

Answer the following questions :

3×5=15

1. What is nicotine?

(6)

2. What is metastable ion in the mass spectra of an organic compound?

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(7)

3. Explain tertiary structure of protein.

(8)

4. Explain molecular yoga with example.

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(9)

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

★ ★ ★