

S-5/CEMH/CC-11/19

TDP (Honours) 5th Semester Exam., 2019

CHEMISTRY

(Honours)

ELEVENTH PAPER [CC - 11]

Full Marks : 60

Time : 3 Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Answer Question No. 1 and *four* questions,
taking *one* from each unit.

1. Answer any *six* questions : 2×6=12

- (a) What happens when glycine is treated with CuSO_4 in basic medium? Write the reaction.
- (b) Amino acid cannot be directly titrated with alkali.
— Explain why?
- (c) Why RNA undergoes hydrolysis but DNA does not?
- (d) What are co-enzymes? Cite an example.

[Turn Over]

- (e) What do you mean by low caloric fats?
- (f) Calculate the amount of free energy change during hydrolysis of ATP.
- (g) What do you mean by gluconeogenesis and glucogenesis?
- (h) Write down the medicinal value of curcumin and azadirachtin.

Unit - I

2. (a) What is isoelectric point of an amino acid? Derive a relation for isoelectric pH of an amino acid with its pK_1 and pK_2 .
- (b) Name two blocking reagent of NH_2 group of α -amino acid. Mention their deblocking procedure.
- (c) Synthesize Gly-Ala-Val using Merrifield method. Mention one advantage of this method.

$$4+4+(3+1)=12$$

3. (a) Describe with mechanism, the synthesis of α -amino acid via azlactone intermediate formation.
- (b) How C-terminal residue of a peptide can be determined?

- (c) What do you mean by tertiary structure of protein?
- (d) Write down the ninhydrin test for identification of α -amino acids. 4+3+2+3=12

Unit - II

4. (a) Write down the structure of uracil. Suggest a method of its synthesis from urea.
- (b) Suggest a method of synthesis of each of the following and write down the reaction involved
- (i) adenine (ii) guanine
- (c) What are nucleotides and nucleosides? Draw the structure of a nucleotide containing a purine base. 3+(3+3)+3=12
5. (a) What do you mean by competitive and non-competitive inhibitors?
- (b) Write the mechanism of enzyme action.
- (c) Briefly discuss the factors affecting enzyme action.
- (d) Define allosteric inhibition of enzyme. 4+3+3+2=12

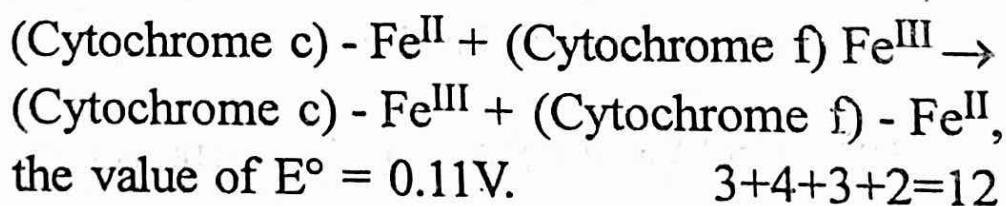
[Turn Over]

Unit - III

6. (a) What is rancidity? How can it be prevented?
- (b) Define saponification value, acid value and iodine value of an oil?
- (c) Illustrate with suitable example (i) hydrogenation of oil and (ii) transesterification.

$$2+(2+2+2)+4=12$$

7. (a) Discuss the role of ATP in biochemical processes.
- (b) Outline the sequence of reaction involved in glycolysis.
- (c) Briefly discuss conversion of pyruvate into acetyl-CoA.
- (d) Calculate ΔG° for the following reactions :



$$3+4+3+2=12$$

Unit - IV

8. (a) Write a green synthesis and therapeutic use of ibuprofen.
- (b) Write the chemical name and structure of vitamin C. Briefly mention its chemical importance.

(5)

- (c) Write a method of synthesis of ranitidine.
Mention its side effects.

$$(2+2)+(1+1+2)+(2+2)=12$$

9. (a) What are antimalarials? Write a method of synthesis of chloroquine.

- (b) Outline the synthesis of Chloramphenicol.
Mention one use of it.

- (c) What are antibiotics? Mention the characteristics of antibiotics.

$$4+(3+1)+4=12$$
