2022

(Held in 2023)

CHEMISTRY

Paper : CHMHC5116

(Organic Chemistry—IV)

Full Marks : 60
Pass Marks : 24

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Choose the correct answer : 1×5=5

(a) Which of the following is not a derivative of purine base?

(i) Adenosine

(ii) Guanosine

(iii) ATP

(iv) None of the above

(b) Carbobenzoxy method in peptide chemistry is

(i) a method of determination of C-terminal residue analysis of peptide chain

(ii) a method of determination of N-terminal residue analysis of peptide chain

(iii) a method for synthesis of peptide chain by C-protection of α-amino acids

(iv) None of the above

(c) The number of millilitres of KOH (0·1 *N*) required to neutralize. The volatile water-soluble acid obtained by hydrolysis of 5 g of fats or oils is called

(i) acid value

(ii) potassium value

(iii) Reichert-Meissl value

(iv) saponification value

(d) The degradation of absorbed food substances into smaller molecules by catabolism is

(i) an exothermic process

(ii) an endothermic process

(iii) an adiabatic process

(iv) None of the above

(Continued)

(e) The relatively low molecular weight of non-proteinoid group of enzyme is known as

(i) coenzyme

(ii) apoenzyme

(iii) holoenzyme

(iv) None of the above

2. Answer the following questions : 2×5=10

(a) What do you mean by nucleotide? Draw the basic structure of nucleotide.

(b) What changes take place to α-amino acids on heating? Give chemical reaction only.

(c) Write briefly on two factors affecting enzyme activity.

(d) Write two medicinal values of neem (Azadirachtin).

(e) What is ranitidine? Write its uses.

3. Answer any *five* of the following questions : 5×5=25

(a) Discuss the synthesis of α-amino acids from potassium phthalimide and α-halo acids.

(Turn Over)

(b) Explain any one method of dipeptide synthesis using N-protection.

(c) What is active site of enzyme? Write few salient features of active site of enzyme.

(d) Explain Edman's degradation method for N-terminal residue analysis of a peptide chain.

(e) What are saponification value and iodine value of fats and oils? Explain the term rancidity of fats and oils.

(f) Give the structure, synthesis and uses of paracetamol.

(g) Explain the role of NAD^+ and FAD in biological redox systems.

4. Answer any *two* of the following questions : $10 \times 2 = 20$

(a) Discuss the payoff phase of glycolysis releasing four molecules of ATP.

(b) What are inhibitors in enzyme action? Explain different types of inhibitors.

(c) Discuss Krebs' cycle of aerobic metabolism.

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