2018

CBCS

3rd Semester

CHEMISTRY

PAPER—SEC1T

(Honours)

Full Marks : 25

Time : 1 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Analytical Clinical Biochemistry

Group—A

1. Answer any *five* questions : 5×2

(a) Define liposomes.

(b) State the role of cholesterol in maintaining membrane fluidity.

(Turn Over)

(c) What is lactic acid fermentation ?

(d) Differentiate between cerebroside and ganglioside.

(e) What do you mean by 'Pay Off' and 'Preparatory Phase' of Glycolysis.

(f) Describe briefly the double helix structure of DNA.

(g) Write short notes on "Denaturation of proteins".

(h) What are the similarities and differences between secondary nucleic acid structure and secondary protein structure ?

Group—B

Answer any *one* questions : 1×10

2. (a) What do you mean by the terms "Transcription" and "Translation". 3

(b) Discuss the effect of pH on catalyzing activity of enzymes. 3

(c) Classify lipoproteins and state the physiological significance of HDL cholesterol in the prevention of artherosclerosis. 2+2

3. (a) Elaborate the steps of TCA cycle highlighting the steps of CO_2 evolution. 6

(b) What do you mean by substrate level ATP formation and Oxidative phosphorylation. 2+2

Group—C

Answer any *one* question. 1×5

4. (a) What is lactic acid fermentation ? Under what physiological circumstance does it take place ? 2

(b) State the role of cholesterol in maintaining membrane fluidity. 3

5. State the normal range of blood urea and cholesterol in normal adult human. State the physiological significance of their elevated values. 5

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Pharmaceutical Chemistry

Group—A

1. Answer any *five* questions : 5×2

(a) Briefly explain the meaning of the term "Pharmacophore".

(b) Write the differences between Aerobic and Anaerobic Fermentation.

(c) Why is water solubility an important factor in drug design ?

(d) Name the microorganisms for the production of

(i) cephalosporin antibiotic and

(ii) Vitamin B_2.

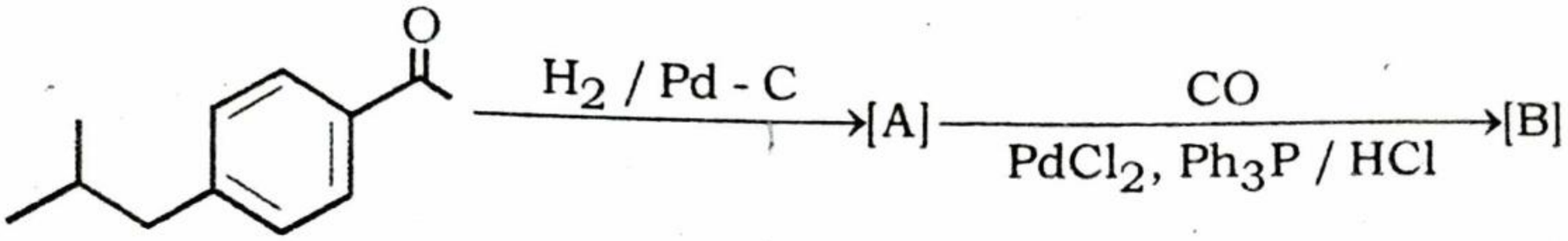
(e) Give the medicinal use of sulphonamides drug with an example.

(f) Write the stereochemical structure of

(i) cephalosporin antibiotic and

(ii) Vitamin C.

(g) Identify the structure of A and B in the following reactions.



(h) Explain with suitable example the significance of stereochemical configuration in designing a new drug.

Group—B

Answer any *one* question. 1×10

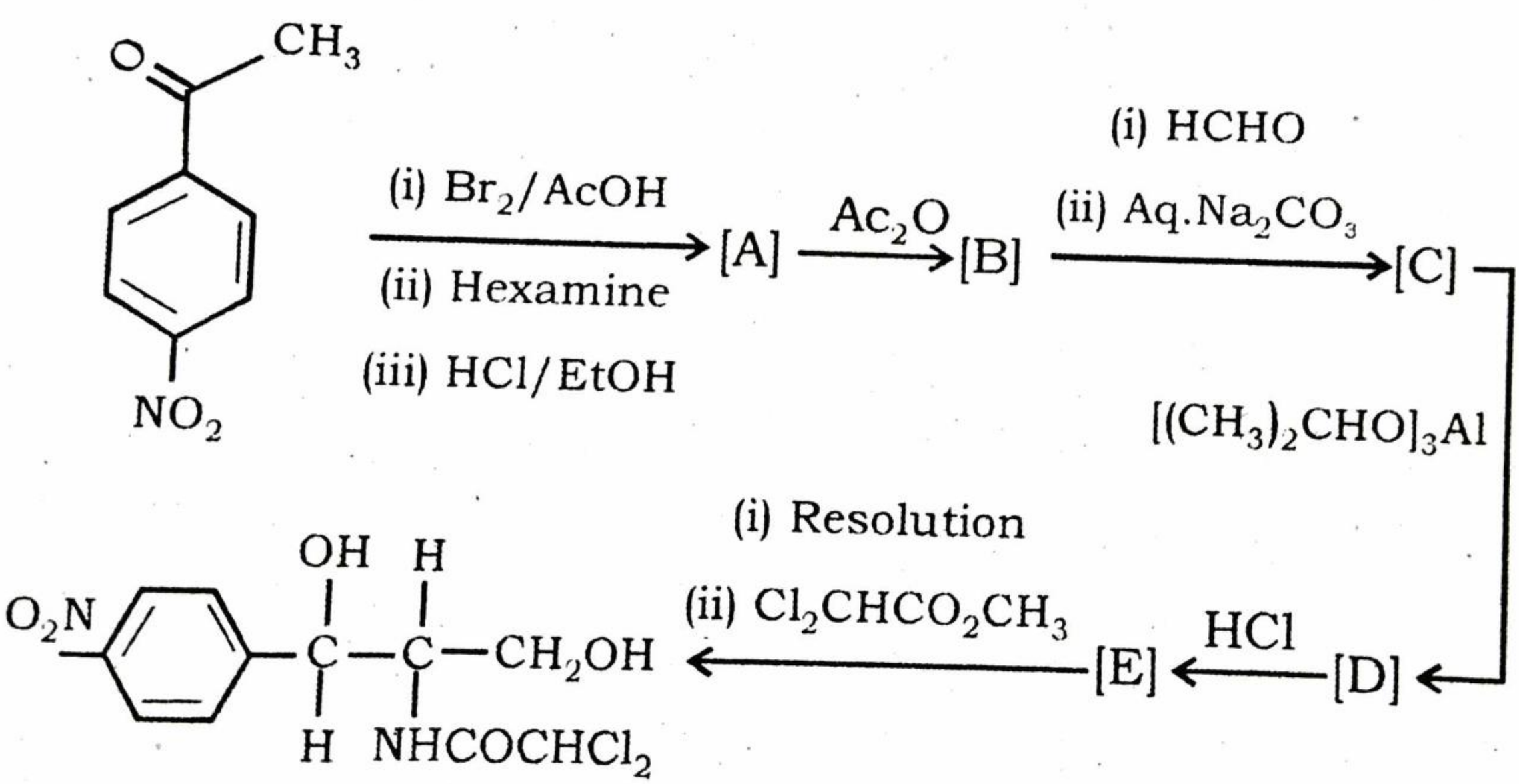
2. (a) What are the advantages and disadvantages of fermentative production of vitamins ? 3

(b) Explain the meaning and significance of the term "LEAD Compound" in the course of drug design with example. 3

(c) Draw the structure of Phenobarbital. Show its retrosynthetic analysis and forward synthesis. 4

3. (a) Discuss the downstream Processing of Vitamin B_2. 3

(b) Identify the Structures of the intermediate compound A to E in synthesis of chloramphenicol antibiotic. 5



chloramphenicol

(c) Explain the term "Prodrug" with suitable example. 2

Group—C

Answer any *one* question. 1×5

4. Match the two columns :

Column A	*Column B*
(i) AZT-Zidovudine	I. Typhoid fever
(ii) Dapsone	II. Antilaprosy Drug
(iii) Chloramphenicol	III. Antibacterial and Antifungal Agent
(iv) Acyclovir	IV. HIV-AIDs rotated drug
(v) Trimethoprim	V. Antiviral agents

5. (a) Discuss the medium and conditions for the fermentation of cephalosporin antibiotic. 2

(b) Show the flow sheet diagram for the fermentation of ethyl alcohol from molasses. 3