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- (c) Give the stepwise synthesis of anthracene using
phthalic anhydride. (3)

(1000)

[This question paper contains 8 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 1495 I

Unique Paper Code : 2173522002

Name of the Paper : DSE:Polynuclear Hydrocarbons,
Pharmaceutical Compounds,
UV-Visible & IR Spectroscopy

Name of the Course : B.Sc. (Prog.)

Semester : III / V

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

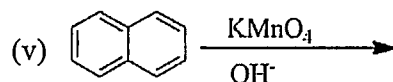
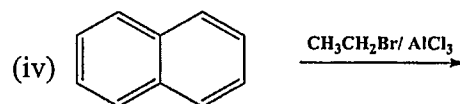
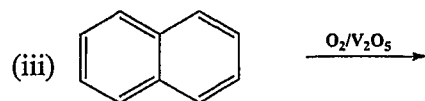
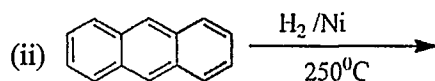
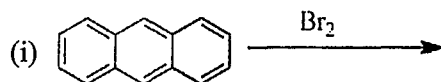
1. Write your Roll No. on the top immediately on receipt of this question paper.
2. All questions carry equal marks.
3. Answer any **four** questions in all.
4. Attempt all parts of a question together.

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1. (a) Complete the following reactions : (5×1)



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(b) Discuss the medicinal importance of curcumin and neem? (4)

(c) Explain why naphthalene is more reactive than benzene towards electrophilic substitution reaction. (5)

6. (a) Give the structure and uses of the following :

(3×3)

(i) Chloramphenicol

(ii) Paracetamol

(iii) Chloroquine

(b) Discuss briefly the principle of IR spectroscopy?

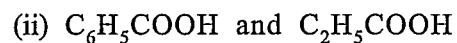
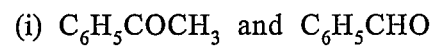
(3)

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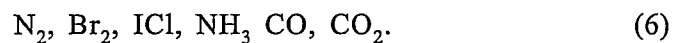
4. (a) How will you distinguish between the following compounds using IR spectroscopy: (2×3)



- (b) Explain electrophilic substitution reaction in anthracene. (4)

- (c) Write the laboratory preparation of Aspirin. Discuss its mode of action and uses. (5)

5. (a) Define Lambert-Beer's law. What is the condition for a molecule to be IR active? Which of the following compounds are IR active and why, give reasons :



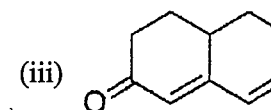
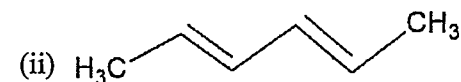
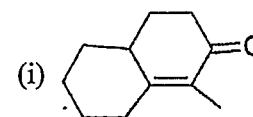
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- (b) Give the stepwise synthesis of naphthalene by Haworth's method. (5)

- (c) Define antipyretic drugs with examples. Give their mode of action. (5)

2. (a) Calculate λ_{max} for the following : (3×3)



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Base value for α , β -unsaturated ketones = 215 nm

Increment for each substituent

Alkyl substituent or ring residue at the α -position =

10 nm, β -position = 12 nm, γ - or δ - or higher

position = 18 nm, Exocyclic double bond = 5 nm,

Double bond extended conjugation = 30 nm Base

value for acyclic/heteroannular diene = 214 nm,

Homoannular diene = 253 nm

Increment for each substituent

Alkyl substituent or ring residue = 5 nm, Exocyclic

double bond = 5 nm, Double bond extended

conjugation = 30 nm

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(b) Why are broad absorption bands observed in the UV spectrum instead of sharp peaks? (3)

(c) What are antibiotics? Give any two examples. Explain how do they work in the body? (3)

3. (a) Write a short note on the following : (2×4)

(i) Chromophore and Auxochrome

(ii) Red and Blue Shift in UV Spectroscopy

(b) What do you understand by fingerprint region in IR Spectroscopy for structural determination? What is its importance? (5)

(c) Give the structure and uses of Ibuprofen. (2)

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