

DIAS

Phase Test - 1 (P - 2)

Attempt All Questions

Time Allowed 2 hours

Total Marks = 200

1. (a) Write down product of following reaction and give mechanism. (4×5 = 20)

(i)

- b) p- bromo toluene reacts with sodamide in liquid NH_3 to give only 2-products while m - bromo toluene give 3-products. Explain (10)
- c) How will you achieve following conversion 5×2 = 10
- (i) $\text{PhCOCH}_3 \rightarrow \text{PhCOCD}_3$

(d) For the reaction (10)

- What is the optical activity of the product?
- Draw the energy profile for the reaction
- Write the structure for the intermediate
- What is the effect of doubling the concentration of KOH on the rate of the reaction?

If aqueous KOH is replaced by alcoholic KOH, write the structure of the product formed

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2. (a) Which of the following compound are aromatic? Give reason to justify your answer. (10)

b) What is singlet and triplet carbene discuss their behaviour towards addition reaction. (10)

How will you a certain that Mech 2 is operating while mech 1 is not operating. (10)

d) On basis of modern concept of Aromaticity have will you explain Azulene as blue and show dipole moment of 0.8 D whereas its isomer. Naphthalene is colourless and has non – polar character (10)

e) Discuss mechanism for free radical polymerization of Styrene. (10)

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3. (a) The oxidation of Ph_2CHOH is several times faster than that of Ph_2CDOH whereas benzene and hexadeuterobenzene C_6D_6 undergo nitration at the same rate. Explain (10)

b) Provide mechanism:- $(6\frac{1}{2} + 6\frac{1}{2})$

c) Explain the following belief:-

Optically pure loses its optical activity in DMSO.

(ii) $\cdot\text{CH}_3$ give four esr signal while $\cdot\text{CD}_3$ given 7 e s r signal.

(iii) C_6H_6 & C_6D_6 undergo chlorination at same rate.

(iv) Optically pure undergo racemization in basic medium solution (20)

(d) The correct order of acidity of the compound A – C and provide explanation.

(7)

4. (a) Discuss the mechanism for formation of following alkene (only curly arrow).

(15)

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b) Which of the following two compounds will have higher dipole moment and why? (10)

(c) Explain the variations in the pK_a values for these carbon acids. (10)

(d) Propose a mechanism for each of the following reactions: (15)