22232

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions : (1) All Questions are *compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answers with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

(6) Abbreviations used convey usual meaning.

Marks

1. Answer any FIVE : **5 × 2 = 10**

(a) Write any four 'distinguishing features' between 'aliphatic and aromatic compounds'.

(b) State four commercial 'applications' of 'hydroxy benzene'.

(c) Write 'boiling point' of 'Uniline' and state its 'characteristics odour'.

(d) Define 'resonance'. Write resonating structure of 'naphthalene'.

(e) Define 'colour index'. State its 'significance'.

(f) Highlight 'Witt's theory'.

(g) Write the fastness properties of a dye depends on their chemical structure. Give two examples.

2. Answer any THREE : **3 × 4 = 12**

(a) Explain with reaction, 'mechanism' of 'sulphonation of benzene'.

(b) Describe with reaction, 'preparation of nitrobenzene' from benzene.

(c) Explain with reactions : 'oxidation' of 'aniline'. Name the product formed and state its use.

(d) Classify with examples of dyes based on 'application method'.

3. Answer any THREE : **3 × 4 = 12**

(a) Describe with reaction 'aromatisation' of 'n-heptane'.

(b) Show with reaction

(i) 'fusion of sodium salt' of benzene sulphonic acid with 'sodalime'. Name the product formed.

(ii) Conversion of benzene sulphonic acid 'to the disulphonic acid'.

(c) Write chemical name, structural formula and one specific use of any **two** :

(i) G acid

(ii) H acid

(iii) naphthionic acid

(d) Describe a method to 'determine solubility of a dye', with a diagram.

4. Answer any THREE : **3 × 4 = 12**

(a) Describe 'preparation of benzene' from coal-tar.

(b) Write conversion of aniline diazonium chloride to :

(i) Benzene

(ii) Phenol

(iii) Nitrobenzene

(iv) Chlorobenzene

(c) 'Classify organic pigments' based on their 'structure'. Give examples.

(d) Explain with examples, relation between chemical structure of a dye and substantivity, linearity.

(e) Describe 'molecular orbital theory'.

5. Answer any TWO : **2 × 6 = 12**

(a) (i) Define 'coal tar'. **1**

(ii) Name coal tar distillation products. Write their corresponding distillation range. State their uses. **5**

(b) (i) Describe 'diazotisation of aniline'. Indicate the reactions involved. **4**

(ii) State 'precautions' to be taken in the process. **1**

(iii) Why is the diazonium salt, 'not isolated' ? **1**

(c) (i) Define 'light fastness' (L.F.). Represent 'LF scale'. **2**

(ii) Compare in general pigments and dyes for **4**

(1) Chemical bonding,

(2) Brightness/dullness,

(3) Bleeding (solubility),

(4) L.F.

6. Answer any TWO : **2 × 6 = 12**

(a) (i) Write reactions and reaction conditions, for conversion of 'cumene to phenol'. **4**

(ii) Name the 'intermediate' formed and state its 'uses'. **2**

(b) Explain with reactions :

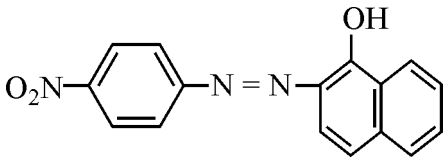
(i) 'Reduction of Naphthalene' using different reducing agents. Name the product formed. **4**

(ii) 'Oxidation of Naphthalene'. Name product formed. **2**

P.T.O.

(c) (i) Define 'coupling reaction'. Give two examples of 'coupling agents'. **2**

(ii) For the pigment represented below, name : **4**



(1) amine – component,

(2) coupling component,

(3) chromophore

(4) auxochrome
