17343

15116

3 Hours / 100 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) Assume suitable data, if necessary.

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

Marks

1. Attempt any TEN of the following : **20**

a) Write disadvantages of natural dyes.

b) List the products which are obtained in destructive distillation of coaltar. Write their applications in dyestuff manufacturing.

c) Define auxochrome. Give two examples.

d) Why is nitrobenzene pale yellow and aniline dark yellow in colour ?

e) List the types of chromophores. Give an example of each.

f) State the factors affecting on absorption of light by matter.

g) Define the terms :

(i) Dye

(ii) Intermediate

h) Define pigment. Name two black pigments.

Marks

i) How will you prepare following intermediate :

Metanilic acid

OR

Draw the structure of H acid and J acid.

j) Classify nitrodyes giving one example of each.

k) Define an azo dye. Indicate chromophore present in it.

l) What does abbreviation of :

(i) DPM dye

(ii) TPM dye

stand for ?

m) List the chemicals required for preparation of reactive dyes.

2. Attempt any FOUR of the following : **16**

a) Write the requirements of a true dye.

b) What are electromagnetic radiations ? State the equation relating energy and frequency. Explain the terms involved in it.

c) Define the terms :

(i) hue

(ii) chroma

(iii) value

with the help of a diagram.

d) Define colour index. Write its applications.

e) How will you prepare following intermediates :

(i) J acid

(ii) peri acid

Write giving chemical reactions and reaction conditions involved.

f) Write preparation of an azo dye starting from H acid.

Marks

3. Attempt any FOUR of the following : **16**

a) Distinguish between dye and colour.

b) Explain the phenomenon of additive and subtractive colour mixing with the help of a diagram.

c) Explain relationship between chemical structure and subtantivity of dyes.

d) Draw a flow chart indicating classification of dyes on the basis of method of application.

e) Write about acid dye considering following points :-

(i) Structure

(ii) Nature of fibre on which they are applied

(iii) pH

(iv) general reaction between dye and fibre.

f) How will you prepare napthionic acid and J acid ? Indicate with chemical reactions.

4. Attempt any FOUR of the following : **16**

a) Explain mechanism of dyeing.

b) What is blue shift and red shift ? Explain drawing suitable diagram.

c) What is relation between colour and chemical constitution ? Explain on the basis of modern theory of light.

d) Explain giving examples, classification of dyes, on the basis of their structure.

e) Write chemical name of H acid. Explain with reaction, preparation of H acid.

f) Write a method of preparation of an acid dye. Identify chromophore, auxochrome and solubilising agent present in it.

Marks

5. Attempt any FOUR of the following : **16**

a) Explain giving examples, role of intermediates in dyestuff industry.

b) Explain with examples, relation between chemical structure and fastness properties of dyes.

c) Give a brief account of metal complex dyes.

d) Explain nomenclature of dyes.

e) Explain meaning of ME brand reactive dyes. Give two examples.

f) How will you prepare anthroquinone dye ? Explain with the help of chemical reactions.

6. Attempt any FOUR of the following : **16**

a) Explain colour and chemical constitution on the basis of valence bond theory.

b) Distinguish between dyes and pigments.

c) Explain giving examples classification of pigments.

d) How will you prepare an azo dye from naphthionic acid ? Explain giving chemical reactions.

e) Explain the method of preparation of cold brand reactive dye.

f) Describe the method of preparation of hot brand reactive dye.
