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[61/A-20]

SARDAR PATEL UNIVERSITY  
M. Sc. Organic Chemistry [III<sup>rd</sup> - Semester]  
External Theory Examination October - 2016  
Subject: Synthetic Dyes and Pigments (PS03ECHE01)

Date: 28/10/2016, Friday

Time: 02:00 p.m. To 05:00 p.m.

Marks: 70

Q. 1. Choose the correct answers from the options given below.

[8]

- The Chromophoric group in a dye molecule which \_\_\_\_\_.  
(a) is the responsible for color of the dye molecule  
(b) increases the intensity of the dye  
(c) acts as a mordant  
(d) decreases the intensity of the dye
- The absorption region for blue color is \_\_\_\_\_  
(a) 5800-5950 Å (b) 5000-5600 Å (c) 4350-4800 Å (d) None of above
- The Hair dyes must be tested for \_\_\_\_\_ acceptability and related side effect.  
(a) Toxicological (b) Color (c) Psychological (d) Pharmacological
- Disappearing inks typically rely on the chemical reaction between \_\_\_\_\_ and a basic substance like NaOH.  
(a) Starch (b) Thymolphthalein  
(c) Fluorescent (d) Caramel
- Natural leather can be dyed with \_\_\_\_\_ dye.  
(a) Mordant dyes (b) Yellow dyes (c) Acid dyes (d) Basic dyes
- Dye forming process is a process used in \_\_\_\_\_.  
(a) Electronic dyes (b) Biological dyes  
(c) Color photography (d) Electrical dyes
- Dyes in medicinal application are possible due to \_\_\_\_\_.  
(a) Fluorescein (b) Nontoxic nature  
(c) Special color (d) All of above
- The chief difference between a fabric dyes and pigments is \_\_\_\_\_.  
(a) That pigments are dissolved and absorbed while dyes are applied like paint  
(b) Cost  
(c) That dyes are dissolved and absorbed while pigments are applied like paint  
(d) That dyes are suitable only for natural-fiber fabrics

Q. 2. Answer the following. [Any seven]

[14]

- Describe relation between color absorbed and color seen.
- Give the requisites of true dye.
- Give any two structures of DSSC.
- Explain: p- aminoazobenzene is yellow but in acidic solution it becomes violet.
- Write the selecting criteria of synthetic food dye.
- List out the dyes used as an indicator with their structure.
- Give the difference between dyes and pigment.
- Explain the working of air dye technology.
- Describe metal complexes of pigments.

(1)

(P.T.O.)

Q. 3. [A] Write all the important postulates of VBT and MOT used in explaining dyes. [6]  
[B] Write synthesis of any three from the following. [6]

(i) Tartrazine

(ii) Direct deep black

(iii) Stilbene Azo

(iv) Crystal violet

(v) Orange - I

OR

[B] Explain the term Chromophore and Auxochrome and classify them with suitable example. [6]

Q. 4. [A] Explain different types of printing techniques used for textile printing. [6]

[B] Explain the following finishing agents of fiber. [6]

(i) Water repellent treatment

(ii) Improvement of handle

OR

[B] Explain the types of interactions present between dye and fiber. [6]

Q. 5. [A] Explain the general approach to achieve NIR system and write applications of NIR Dyes. [6]

[B] Explain the following. [6]

(i) Cyanine type of chromophores

(ii) Donor - Acceptor chromophores.

OR

[B] Write a note on Medicinal and Security application of colorants. [6]

Q. 6. [A] Write a short note on FBA.

[B] Explain Modern high grade pigments and lake of acids. [6]

OR

[B] Write a short note on characterization of pigments. [6]

—x (2) x—