MANIPAL
ACADEMY of HIGHER EDUCATION
(Deemed to be University under Section 3 of the UGC Act, 1956)

Reg. No.										

DEPARTMENT OF SCIENCES, IV SEMESTER M.Sc (CHEMISTRY)
END SEMESTER EXAMINATIONS, APRIL 2018

Subject: APPLIED ORGANIC CHEMISTRY [CHM 706]
(REVISED CREDIT SYSTEM)

Time: 3 Hours | Date:23-04-2018 | MAX. MARKS: 50

Note: (i) Answer any FIVE FULL questions

(ii) Draw diagrams, and write equations wherever necessary

1A. i) Describe the Cholesteric phase of liquid crystals. Explain the principle of thermography.
ii) Explain the working principle of an OLED. What are white OLEDs?

1B. Differentiate the following:
i) Organic semiconductors from inorganic semiconductors on the basis of bonding and processing techniques.
ii) Soaps and Syndets.

1C. Write the mechanism involved in the Kolbe's electrolysis of sodium acetate.

(4+4+2)

2A. i) Explain the boiling process technique of manufacturing soaps. What is the analytical importance of iodine number of an oil/fat?
ii) What are the basic ingredients of cosmetics? How is the Beeswax-Borax emulsion type cleansing cream obtained?

2B. i) Mention any four techniques to grow organic thin films. Explain the vacuum evaporation technique of growing organic thin films.
ii) Differentiate direct and indirect oxidation observed during electro-organic reactions. Write the reduction reaction steps involved in obtaining benzene from chlorobenzene.

2C. What is meant by order parameter in liquid crystals? Describe the structure of polycatenar liquid crystals.

(4+4+2)

3A. i) Name two petrochemicals each obtained from gasoline and naptha. What is the reaction condition required to obtain ethylene oxide from ethylene?
ii) Why do oils have lower melting points than fats? Write the hydrogenation reaction of oil.

3B. i) Write the hydrogenolysis and hydrolysis reactions of tristearate.
ii) What is the composition of Castor oil? Mention any two uses.

3C. What is the composition of nail enamel? How is it prepared?

(4+4+2)

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4A. i) Describe the determination of molecular weight of polymer by membrane osmometry and end group analysis method.

ii) What is meant by diazotization? Write the synthetic route of orange II dye and its mechanism.

4B. Describe the method of preparation, properties and uses of the followings:

i) Polyurethane ii) Epoxy resin

4C. Explain the valence bond theory of colour.

(4+4+2)

5A. Explain the thermoforming moulding and compression moulding processes with a neat diagram. Write two applications of each.

5B. Give the preparation and use of the following dye.

i) Alazirin ii) Pyronine G

5C. Differentiate the following:

a. Resole and Novalac

b. Solution and emulsion polymerization techniques

(4+4+2)

6A. Explain how the structure of a polymer influences the following properties:

i) Chemical resistivity ii) Crystallinity iii) Tensile strength iv) Plasticity

6B. Discuss the classification of dyes on the basis their application.

6C. In a sample of polystyrene Polymers of different degree of polymerization are in the ratio 1:3:4:6. The degree of polymerization of the samples are 345, 570, 800 & 925 respectively. Calculate number average and weight average mol.mass.(Given: Atomic weight of C= 12, & H= 1)

(4+4+2)

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