

193

SEAT No. \_\_\_\_\_

No. of Printed Pages : 2

**SARDAR PATEL UNIVERSITY**  
**M. Sc. -Chemistry (Fourth Semester) EXAMINATION** (under CBCS)  
Industrial Polymer chemistry (IPC)

**PS04EIPC21: Selected Topics in Polymers-II**

26<sup>th</sup> March, 2019, Tuesday,

Time: 2.00 pm to 5.00 pm

Note: Figure to the right in brackets indicates the full marks

Total marks: 70

**Que.1** Give the appropriate answer of the following multi choice questions. **[8]**

- i \_\_\_\_\_ Pigments are made by incomplete combustion of oil or gas.  
(a) Carbon black (b) lead black  
(c) Lamp black (d) '(a) & (c)' both
- ii Combination of a binder and solvent is known as \_\_\_\_\_ in paint industries.  
(a) resin (b) adhesive  
(c) soaps (d) vehicle
- iii Wood rosin is generally obtained from \_\_\_\_\_.  
(a) living trees (b) stumps of pine trees  
(c) Oxidation of unsaturated oils (d) All of the above
- iv Slight difference in the resin characteristics may be produced by \_\_\_\_\_.  
(a) varying the amount of catalyst (b) operating temperature  
(c) reaction time (d) All of them
- v The process of applying an adhesive is:  
(a) Speedy (b) Slow  
(c) Costly (d) bulky
- vi Epoxy adhesives are used in the manufacturing of:  
(a) glass (b) plastic  
(c) fabric (d) plywood
- vii Graft copolymer is:  
(a) Branched polymer (b) Alternating copolymer  
(c) Random copolymer (d) None of the above
- viii In ion exchange process, the cation exchange resin is generated by passing \_\_\_\_\_  
(a) Acids (b) Dilute acids  
(c) Alkalis (d) Dilute alkalis

**Que. 2** Answer the following questions in short (Any Seven). **[14]**

- i. What should be the pigment characteristics for the paints?
- ii. Mention briefly the principles of paint formulation.
- iii. Classify the Vehicles on the basis of their chemical structure.

(1)

(P.T.O)

- iv. Which additives are used in paints to facilitate the pigment dispersion?
- v. How the ester gum is produced industrially?
- vi. Write a short note on varnish.
- vii. Define the terms: Adhesion and Adherend.
- viii. List out the applications of ion exchange resins.
- ix. Give schematic representation of graft copolymer.

- Que. 3** (A) Write a note on fundamentals of paint characteristics. [6]  
(B) Discuss the size and shape of pigment particles. [6]

OR

- (B) Write a note on characteristics and properties of white pigments..

- Que. 4** (A) Describe the 'phenolic resins' used in the paint formulation. [6]  
(B) Write a note on 'chlorinated rubber resins and cyclized rubber resins.. [6]

OR

- (B) Elaborate 'phthalic alkyd resins'.

- Que. 5** (A) Discuss about hot melt adhesives with atleast two commercially used adhesives. [6]  
(B) Write a note on general methods for the preparation of block copolymer. [6]

OR

- (B) Explain the various features of engineering plastics.

- Que.6** (A) Discuss the physical, chemical and mechanical properties of polymethyl methacrylate (PMMA) compared to polystyrene. [6]

- (B) Write a note on "Mechanism of Adhesion" [6]

OR

- (B) Write about the following:

(i) Aramides

(ii) Polyether ether ketone (PEEK)

-----X-----  
(2)