

College of Engineering, Pune
End Semester Exam – F. Y. B. Tech
(AS-103)- (Chemistry)

Date: 13-11-2010
Maximum Marks: 50

Duration : 3 hrs.

Instructions:

1. Solve all the questions
2. Figures to the right indicate full marks.
3. Draw neat, labelled diagrams wherever necessary
4. Do not keep mobile phone with you, if found it will be detained permanently by exam cell.

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| Q. 1 | A. | Discuss the commercial synthesis of polyvinyl chloride polymer and explain the mechanism involved for the above, with one property and application for each. | 4 |
| | B. | Differentiate between raw rubber and vulcanized rubber. | 2 |
| | C. | Draw the schematic diagram of the spectrophotometer and explain its various parts. | 4 |
| Q. 2 | A. | Discuss the properties which will determine whether a lubricant is suitable at different processing temperatures. | 5 |
| | B. | Name the type of corrosion which takes place for the following examples. (Any three).
a) A brass tap fitted to steel tap
b) Water drops sits on metal surface for a long time
c) Nail partially inside the wood
d) Threaded end of pipe.
e) Rusting of fence wires under joints
f) Transmission line support towers. | 3 |
| | C. | Justify the statement "Anodic metallic coatings provide better protection to metal than cathodic ones." | 2 |
| Q. 3 | A. | Discuss moving bed catalytic cracking with suitable diagram. | 5 |

- B. Define the following:- (Any 5) 5
- a) Glass transition temperature
 - b) Knocking
 - c) Beer-Lambert's law
 - d) Law of constancy of interfacial angles.
 - e) Lubricant
 - f) Corrosion
- Q. 4 A. Explain how one can determine the unknown concentration of potassium permanganate solution using suitable instrumental method of analysis. 5
- B. Discuss the seven crystal systems with its fourteen different arrangements of lattice points. 5
- OR
- B. Give the comparison between the characteristic properties exhibited by solid, liquid and gaseous fuel. 5
- Q. 5 A. Suggest the most suitable material for following application:- (Any 5) 5
- a) Skid resistant surfaces
 - b) Bathroom curtaining
 - c) Industrial containers
 - d) Fertilizer spreader
 - e) Body of the computers
 - f) Surgical tools
 - g) Condensor and heat exchanger tubes
- B. Give the classification of iron alloys and discuss the composition, properties and applications of stainless steel. 5
- OR
- B. Explain ion-exchange method for softening of water. 5