Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

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CY-110/CY-111

B.E. I & II Semester

Examination, June 2017

Choice Based Credit System (CBCS)

Chemistry / Chemistry - I

Time : Three Hours

Maximum Marks : 60

Note: i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Discuss molecular orbital concept of bond formation.
   b) Distinguish between ionic bond and covalent bond.

2. a) Define Kohlrausch's law and discuss its applications.
   b) Differentiate between order and molecularity of reaction.

3. a) What is corrosion of metals? Describe the mechanism of electrochemical corrosion by oxygen absorption.
   b) Define:
      i) Phase
      ii) Component
      iii) Degree of freedom

4. a) What is Vulcanisation? How does it improve the property of natural rubber?
   b) Write preparation and uses of
      i) Phenol-formaldehyde resin
      ii) PVC

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5. a) State and explain second law of thermodynamics state the term entropy.
   b) Define the terms:
      i) Heat of neutralisation
      ii) Heat of combustion

6. Write short notes on (any two) of the following:
   a) Rate law
   b) Nylon 6:6
   c) Phase diagram of water
   d) Chemistry of vision

7. a) Discuss the method of determination of Flash and Fire point of a lubricating oil by Pensky-Martin's apparatus.
   b) A water sample on analysis contains the following:
   $Mg(HCO_3)_2 = 16.8mg/L$, $MgCl_2 = 19mg/L$
   $Mg(NO_3)_2 = 29.6ppm$, $CaCO_3 = 20ppm$
   $MgSO_4 = 24mg/L$, $KOH = 0.9ppm$
   Calculate temporary, permanent and total hardness of water sample.

8. Write explanatory notes on following (any two):
   a) Bio-polymerisation
   b) Concentration cells
   c) First law of thermodynamics
   d) VSEPR model

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