Code.No: R05010802 | R05 | SET-1

Time: 3hours   **Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks

- - -

1.a) What is phase? Explain with examples.
  b) How many phases are present in the following systems?
  i) $ice_{(s)} \Leftrightarrow water_{(l)} \Leftrightarrow vapour$
  ii) $CaCo_{3\,(g)} \Leftrightarrow CaO_{(s)} + Co_{2\,(g)}$
  iii) Mixture of N_2 and O_2
  iv) A drop of water placed in stopper.
  c) Define degree of freedom? Give examples. [6+4+6]

2.a) Write a short notes on hydrogen-oxygen fuel cell?
  b) The standard emf for the following cell is 0.74V.
  $Ca_{(s)} / Ca^{+2}_{(a\,Q)} // Cu^{+2}_{(a\,Q)} / Cu.$
  Calculate the equilibrium constant for the reaction at 298 K.
  c) Brief notes on types of electrodes. [6+4+6]

3. Give characteristics of enzyme catalysis. Discuss Michaela's and Menten's enzyme mechanism in detail to express the rate of reaction. Derive the requires equation? [16]

4.a) Differentiate between photochemical and thermal reactions.
  b) Derive the Lambert-beer law.
  c) What does the Quantum efficiency or Quantum yield signify. [8+4+4]

5.a) Discuss the origin of charge on colloides particles. What is meant by electrical double layer? What is meant by Zetepotential?
  b) Explain tyrdell effect. [12+4]

6.a) Explain in detail about the Faradays laws of Electrolysis.
  b) Describe the conductance of solution. [8+8]

7.a) Define:
  i) Order of the reaction
  ii) Molecularity
  iii) Rate of reaction.
  b) Explain how modified collision theory is superior to collision theory. [9+7]

8. The distribution coefficient of Iso butyric acid between ether and water is 3 at 25^0C. What will be the amount Iso butyric acid removed of 4 gm of Iso butyric acid in 100ml of water extracted with 100ml of ethony ethane (ether) at 25^0C? What would be the effect if two successive 50ml portions of ether had been used in extract the aqueous layer? [16]

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Code.No: R05010802   R05   SET-2

I B.TECH – EXAMINATIONS, DECEMBER - 2010
PHYSICAL CHEMISTRY
(CHEMICAL ENGINEERING)

Time: 3hours   **Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks
- - -

1. Give characteristics of enzyme catalysis. Discuss Michaela's and Menten's enzyme mechanism in detail to express the rate of reaction. Derive the requires equation?   [16]

2.a) Differentiate between photochemical and thermal reactions.
  b) Derive the Lambert-beer law.
  c) What does the Quantum efficiency or Quantum yield signify.   [8+4+4]

3.a) Discuss the origin of charge on colloides particles. What is meant by electrical double layer? What is meant by Zetepotential?
  b) Explain tyrdell effect.   [12+4]

4.a) Explain in detail about the Faradays laws of Electrolysis.
  b) Describe the conductance of solution.   [8+8]

5.a) Define:
     i) Order of the reaction
     ii) Molecularity
     iii) Rate of reaction.
  b) Explain how modified collision theory is superior to collision theory.   [9+7]

6. The distribution coefficient of Iso butyric acid between ether and water is 3 at 25^0C. What will be the amount Iso butyric acid removed of 4 gm of Iso butyric acid in 100ml of water extracted with 100ml of ethony ethane (ether) at 25^0C? What would be the effect if two successive 50ml portions of ether had been used in extract the aqueous layer?   [16]

7.a) What is phase? Explain with examples.
  b) How many phases are present in the following systems?
     i) $ice_{(s)} \Leftrightarrow water_{(l)} \Leftrightarrow vapour$
     ii) $CaCo_{3\,(g)} \Leftrightarrow CaO_{(s)} + Co_{2\,(g)}$
     iii) Mixture of N_2 and O_2
     iv) A drop of water placed in stopper.
  c) Define degree of freedom? Give examples.   [6+4+6]

8.a) Write a short notes on hydrogen-oxygen fuel cell?
  b) The standard emf for the following cell is 0.74V.
     $Ca_{(s)} / Ca^{+2}_{(a\,Q)} // Cu^{+2}_{(a\,Q)} / Cu$.
     Calculate the equilibrium constant for the reaction at 298 K.
  c) Brief notes on types of electrodes.   [6+4+6]

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Code.No: R05010802   R05   SET-3

I B.TECH – EXAMINATIONS, DECEMBER - 2010
PHYSICAL CHEMISTRY
(CHEMICAL ENGINEERING)

Time: 3hours   **Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks
- - -

1.a) Discuss the origin of charge on colloides particles. What is meant by electrical double layer? What is meant by Zetepotential?
  b) Explain tyrdell effect.   [12+4]

2.a) Explain in detail about the Faradays laws of Electrolysis.
  b) Describe the conductance of solution.   [8+8]

3.a) Define:
    i)   Order of the reaction
    ii) Molecularity
    iii) Rate of reaction.
  b) Explain how modified collision theory is superior to collision theory.   [9+7]

4. The distribution coefficient of Iso butyric acid between ether and water is 3 at 25^0C. What will be the amount Iso butyric acid removed of 4 gm of Iso butyric acid in 100ml of water extracted with 100ml of ethony ethane (ether) at 25^0C? What would be the effect if two successive 50ml portions of ether had been used in extract the aqueous layer?   [16]

5.a) What is phase? Explain with examples.
  b) How many phases are present in the following systems?
    i) $ice_{(s)} \Leftrightarrow water_{(l)} \Leftrightarrow vapour$
    ii) $CaCo_{3\,(g)} \Leftrightarrow CaO_{(s)} + Co_{2\,(g)}$
    iii) Mixture of N_2 and O_2
    iv) A drop of water placed in stopper.
  c) Define degree of freedom? Give examples.   [6+4+6]

6.a) Write a short notes on hydrogen-oxygen fuel cell?
  b) The standard emf for the following cell is 0.74V.
    $Ca_{(s)} / Ca^{+2}_{(a\,Q)} // Cu^{+2}_{(a\,Q)} / Cu.$
    Calculate the equilibrium constant for the reaction at 298 K.
  c) Brief notes on types of electrodes.   [6+4+6]

7. Give characteristics of enzyme catalysis. Discuss Michaela's and Menten's enzyme mechanism in detail to express the rate of reaction. Derive the requires equation?   [16]

8.a) Differentiate between photochemical and thermal reactions.
  b) Derive the Lambert-beer law.
  c) What does the Quantum efficiency or Quantum yield signify.   [8+4+4]

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Code.No: R05010802 | R05 | SET-4

I B.TECH – EXAMINATIONS, DECEMBER - 2010
PHYSICAL CHEMISTRY
(CHEMICAL ENGINEERING)

Time: 3hours **Max.Marks:80**

Answer any FIVE questions
All questions carry equal marks
- - -

1.a) Define:
   i) Order of the reaction
   ii) Molecularity
   iii) Rate of reaction.
  b) Explain how modified collision theory is superior to collision theory. [9+7]

2. The distribution coefficient of Iso butyric acid between ether and water is 3 at 25^0C. What will be the amount Iso butyric acid removed of 4 gm of Iso butyric acid in 100ml of water extracted with 100ml of ethony ethane (ether) at 25^0C? What would be the effect if two successive 50ml portions of ether had been used in extract the aqueous layer? [16]

3.a) What is phase? Explain with examples.
  b) How many phases are present in the following systems?
   i) $ice_{(s)} \Leftrightarrow water_{(l)} \Leftrightarrow vapour$
   ii) $CaCo_{3\ (g)} \Leftrightarrow CaO_{(s)} + Co_{2\ (g)}$
   iii) Mixture of N_2 and O_2
   iv) A drop of water placed in stopper.
  c) Define degree of freedom? Give examples. [6+4+6]

4.a) Write a short notes on hydrogen-oxygen fuel cell?
  b) The standard emf for the following cell is 0.74V.
   $Ca_{(s)} / Ca^{+2}_{(a\ Q)} // Cu^{+2}_{(a\ Q)} / Cu.$
   Calculate the equilibrium constant for the reaction at 298 K.
  c) Brief notes on types of electrodes. [6+4+6]

5. Give characteristics of enzyme catalysis. Discuss Michaela's and Menten's enzyme mechanism in detail to express the rate of reaction. Derive the requires equation? [16]

6.a) Differentiate between photochemical and thermal reactions.
  b) Derive the Lambert-beer law.
  c) What does the Quantum efficiency or Quantum yield signify. [8+4+4]

7.a) Discuss the origin of charge on colloides particles. What is meant by electrical double layer? What is meant by Zetepotential?
  b) Explain tyrdell effect. [12+4]

8.a) Explain in detail about the Faradays laws of Electrolysis.
  b) Describe the conductance of solution. [8+8]

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