Code No: RR220803 **RR** **Set No. 2**

II B.Tech II Semester Examinations,December 2010
PHYSICAL CHEMISTRY
Chemical Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the following mechanism in acid base catalysis
   (a) Protolypic
   (b) Prototropic [8+8]
2. (a) What are the basic postulates of theory of absolute reaction rates.
   (b) Write down the rate constants of first and second order reaction. [8+8]
3. (a) Distinguish between electrophorosis and electro osmosis.
   (b) What are the difference between physical adsorption and chemisorptions of Colloids. [8+8]
4. (a) Explain kohlrauschs law . How it is used to determine the solubility of sparingly soluble salts and degree of dissociation.
   (b) What are the advantages of conductometric titration and mention their important precautions. [8+8]
5. (a) Derive Gibbs rule from thermodynamic considerations.
   (b) Explain why the fusion curve of ice has a negative slope where as sublimation curve has positive point.
   (c) What is the number of degrees of freedom at triple point. [8+4+4]
6. Explain the following with suitable reasons.
   (a) Alum is used in shaving
   (b) Alum is used in municipal water supply
   (c) A colloidal solution is not precipitated in the presence of gelatin
   (d) A colloidal solution contains electrically charged particles.
   (e) Tyndall cone is formed when a beam of light is concentrated on colloidal solution [2+3+3+4+4]
7. (a) State Nernst distribution law and discuss the reasons for the deviations observed from this law.
   (b) What are the important applications of Nernst distribution law. [8+8]
8. Derive rates of ionic reactions in media of varying ionic strengh. [16]

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Code No: RR220803 **RR** **Set No. 4**

II B.Tech II Semester Examinations,December 2010
PHYSICAL CHEMISTRY
Chemical Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) State Nernst distribution law and discuss the reasons for the deviations observed from this law.
   (b) What are the important applications of Nernst distribution law. [8+8]
2. (a) What are the basic postulates of theory of absolute reaction rates.
   (b) Write down the rate constants of first and second order reaction. [8+8]
3. (a) Derive Gibbs rule from thermodynamic considerations.
   (b) Explain why the fusion curve of ice has a negative slope where as sublimation curve has positive point.
   (c) What is the number of degrees of freedom at triple point. [8+4+4]
4. (a) Explain kohlrauschs law . How it is used to determine the solubility of sparingly soluble salts and degree of dissociation.
   (b) What are the advantages of conductometric titration and mention their important precautions. [8+8]
5. Derive rates of ionic reactions in media of varying ionic strengh. [16]
6. (a) Distinguish between electrophorosis and electro osmosis.
   (b) What are the difference between physical adsorption and chemisorptions of Colloids. [8+8]
7. Explain the following with suitable reasons.
   (a) Alum is used in shaving
   (b) Alum is used in municipal water supply
   (c) A colloidal solution is not precipitated in the presence of gelatin
   (d) A colloidal solution contains electrically charged particles.
   (e) Tyndall cone is formed when a beam of light is concentrated on colloidal solution [2+3+3+4+4]
8. Explain the following mechanism in acid base catalysis
   (a) Protolypic
   (b) Prototropic [8+8]

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Code No: RR220803 **RR** **Set No. 1**

II B.Tech II Semester Examinations,December 2010
PHYSICAL CHEMISTRY
Chemical Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. Explain the following with suitable reasons.
   (a) Alum is used in shaving
   (b) Alum is used in municipal water supply
   (c) A colloidal solution is not precipitated in the presence of gelatin
   (d) A colloidal solution contains electrically charged particles.
   (e) Tyndall cone is formed when a beam of light is concentrated on colloidal solution [2+3+3+4+4]
2. (a) Distinguish between electrophorosis and electro osmosis.
   (b) What are the difference between physical adsorption and chemisorptions of Colloids. [8+8]
3. (a) Derive Gibbs rule from thermodynamic considerations.
   (b) Explain why the fusion curve of ice has a negative slope where as sublimation curve has positive point.
   (c) What is the number of degrees of freedom at triple point. [8+4+4]
4. Derive rates of ionic reactions in media of varying ionic strengh. [16]
5. (a) What are the basic postulates of theory of absolute reaction rates.
   (b) Write down the rate constants of first and second order reaction. [8+8]
6. Explain the following mechanism in acid base catalysis
   (a) Protolypic
   (b) Prototropic [8+8]
7. (a) Explain kohlrauschs law . How it is used to determine the solubility of sparingly soluble salts and degree of dissociation.
   (b) What are the advantages of conductometric titration and mention their important precautions. [8+8]
8. (a) State Nernst distribution law and discuss the reasons for the deviations observed from this law.
   (b) What are the important applications of Nernst distribution law. [8+8]

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Code No: RR220803 **RR** **Set No. 3**

II B.Tech II Semester Examinations,December 2010
PHYSICAL CHEMISTRY
Chemical Engineering

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

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Derive Gibbs rule from thermodynamic considerations.
   (b) Explain why the fusion curve of ice has a negative slope where as sublimation curve has positive point.
   (c) What is the number of degrees of freedom at triple point. [8+4+4]
2. Explain the following mechanism in acid base catalysis
   (a) Protolypic
   (b) Prototropic [8+8]
3. (a) Distinguish between electrophorosis and electro osmosis.
   (b) What are the difference between physical adsorption and chemisorptions of Colloids. [8+8]
4. Explain the following with suitable reasons.
   (a) Alum is used in shaving
   (b) Alum is used in municipal water supply
   (c) A colloidal solution is not precipitated in the presence of gelatin
   (d) A colloidal solution contains electrically charged particles.
   (e) Tyndall cone is formed when a beam of light is concentrated on colloidal solution [2+3+3+4+4]
5. (a) Explain kohlrauschs law . How it is used to determine the solubility of sparingly soluble salts and degree of dissociation.
   (b) What are the advantages of conductometric titration and mention their important precautions. [8+8]
6. (a) State Nernst distribution law and discuss the reasons for the deviations observed from this law.
   (b) What are the important applications of Nernst distribution law. [8+8]
7. Derive rates of ionic reactions in media of varying ionic strengh. [16]
8. (a) What are the basic postulates of theory of absolute reaction rates.
   (b) Write down the rate constants of first and second order reaction. [8+8]

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