Code No: R10204/R10 **Set No. 1**

I B.Tech II Semester Supplementary Examinations, Feb. 2015
ENGINEERING CHEMISTRY -II
(Common to Civil Engineering, Electrical & Electronics Engineering, Mechanical Engineering, Electronics & Communication Engineering, Computer Science & Engineering, Chemical Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Information Technology, Electronics & Computer Engineering, Aeronautical Engineering, Bio-Technology, Automobile Engineering, Mining and Petroliem Technology)

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Write an account of the preparation, properties & engineering applications of the following.
   (i) PVC
   (ii) Teflon
   (b) Write a brief account of following.
   (i) Tacticity of polymer
   (ii) Functionality of polymer [9+6]

2. (a) What is meant by the moulding? Explain with neat diagram compression & injection moulding of plastics?
   (b) Write a note on engineering applications of the plastics? [8+7]

3. What are the additives mixed with natural rubber to improve required proprieties? Disuses about the different additives briefly? [15]

4. (a) What are nanomaterials? Discuss briefly about nanomaterials in one, two and three dimensions?
   (b) What are the different nanomaterials that are used for engineering applications [10+5]

5. (a) Compare the dry and wet processes for producing cement
   (b) What are glazed and unglazed ceramics? [8+7]

6. (a) Distinguish between thermal and catalytic cracking.
   (b) Write short notes on cetane number
   (c) What is viscosity index of oil? How it is important property? [5+5+5]

7. Write short notes on
   (i) Anodic protection. (ii) Water line corrosion.
   (iii) Chemical Corrosion (iv) Pitting corrosion. (v) Stress corrosion [15]

8. Give a brief note on how can engineers protect the environment. [15]

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Code No: R10204/R10 **Set No. 2**

I B.Tech II Semester Supplementary Examinations, Feb. 2015
ENGINEERING CHEMISTRY -II
(Common to Civil Engineering, Electrical & Electronics Engineering, Mechanical Engineering, Electronics & Communication Engineering, Computer Science & Engineering, Chemical Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Information Technology, Electronics & Computer Engineering, Aeronautical Engineering, Bio-Technology, Automobile Engineering, Mining and Petroliem Technology)

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Briefly explain the mechanism of Free radical polymerization?
   (b) Write a short note on classification of polymers based on source and applications? [5+10]

2. (a) What is NOMAX? Give its properties and uses.
   (b) Why are the following ingredients used during the moulding of plastics. (i).Resin (ii). Plasticizers (iii). Fillers (iv). Lubricants (v). Stabilizers [5+10]

3. What are the additives mixed with natural rubber to improve required proprieties? Disuses about the different additives briefly? [15]

4. (a) Explain SWCNT & MWCNT
   (b) Describe any one method for the production of carbon nanotubes.
   (c) Descuss the application of fullerenes [5+7+3]

5. (a) Explain the role of gypsum in setting and hardening of cement
   (b) Define glazed ceramics
   (c) What are refractories? Give an account of any three characteristics of a good refractory material [5+5+5]

6. (a) What is meant by knocking in petrol engine? How it is related to chemical constitution of petrol?
   (b) Define and Signify (i) Flash point and fire point (ii) Could & Pour point [7+8]

7. (a) Define Corrosion .Explain the mechanism of corrosion of iron when it is exposed to the air.
   (b) What are anodic and cathodic metallic coatings that are used to control corrosion? [8+7]

8. (a) What is Green Chemistry? Write briefly about Engineering Applications of Green Chemistry?
   (b) Discuss any four Principals of the Green Chemistry. [7+8]

Code No: R10204/R10 **Set No. 2**

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Code No: R10204/R10 **Set No. 3**

I B.Tech II Semester Supplementary Examinations, Feb. 2015
ENGINEERING CHEMISTRY -II
(Common to Civil Engineering, Electrical & Electronics Engineering, Mechanical Engineering, Electronics & Communication Engineering, Computer Science & Engineering, Chemical Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Information Technology, Electronics & Computer Engineering, Aeronautical Engineering, Bio-Technology, Automobile Engineering, Mining and Petroliem Technology)

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Discuss the Condensation & Addition polymerization with suitable examples?
   (b) What are the Biodegrable polymers? Give an example? [10+5]

2. (a) What is meant by carbon fiber reinforced plastics? Give its use?
   (b) Write notes on the following (i) Thermoplastics (ii) Thermosetting plastics [6+9]

3. (a) What is an elastomer. Explain the characteristic of clastomers
   (b) Write short note on Gutta Percha.
   (c) Differentiate between a natural rubber and an elastomer. [7+3+5]

4. (a) Describe the production of carbon nanotubes by laser ablation method?
   (b) Discuss the applications of fullerenes.
   (c) Explaine the properties of carbon nanotubes? [8+4+3]

5. (a) Define glazed ceramic materials.
   (b) Classify the refractories on the basis of their composition [9+6]

6. (a) What is knocking in petrol engine? Explain how it is related with the chemical structure of fuel.
   (b) Discuss about boundary lubrication and extreme pressure lubrication [7+8]

7. (a) State Pilling Bedworth rule. Explain its significance.
   (b) Explain the difference in the use of anodic and cathodic coatings for corrosion prevention. [7+8]

8. (a) What is Green Chemistry? Write briefly about Engineering Applications of Green Chemistry?
   (b) Discuss any four Principals of the Green Chemistry. [7+8]

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Code No: R10204/R10 **Set No. 4**

I B.Tech II Semester Supplementary Examinations, Feb. 2015
ENGINEERING CHEMISTRY -II
(Common to Civil Engineering, Electrical & Electronics Engineering, Mechanical Engineering, Electronics & Communication Engineering, Computer Science & Engineering, Chemical Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Information Technology, Electronics & Computer Engineering, Aeronautical Engineering, Bio-Technology, Automobile Engineering, Mining and Petroliem Technology)

Time: 3 hours **Max Marks: 75**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) What are the conducting polymers? Give an example & explain its engineering applications?
   (b) Write a short note on Engineering polymers and their applications? [7+8]
2. (a) Write a short note on reclaimed & non reclaimed plastics with suitable examples?
   (b) Write a note on use of bullet proof plastics [10+5]
3. (a) Explain how polyurethanes are prepared? What are their properties and applications
   (b) Explain the Engineering application of Rubber [9+6]
4. (a) What is the effect of Nano Materials on food science
   (b) What are fullerenes and how they are prepared
   (c) Write any five engineering applications of Carbon Nano Tubes [5+5+5]
5. (a) Write the functions of ingredients of cement .
   (b) Name the different ceramic products.
   (c) Explain the terms refractoriness and thermal spalling [6+4+5]
6. (a) What is meant by cracking? Explain thermal and catalytic cracking.
   (b) Explain briefly reforming
   (c) Explain the term viscosity index used in lubricant technology [8+3+4]
7. What are the different types of corrosion? Discuss the basic principles of corrosion control. [15]
8. Write notes on the following
   (a) Aqueous phase method of green synthesis.
   (b) Supercritical fluid extraction.
   (c) Bio catalysts for green synthesis. [5+5+5]

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