

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
 Petroleum Technology)

Time: 3 hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

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 properties? Discuss 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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Time: 3 hours

Max Marks: 75

**Answer any FIVE Questions
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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]

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Set No. 2



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Set No. 3

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ENGINEERING CHEMISTRY -II

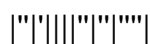
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Time: 3 hours

Max Marks: 75

**Answer any FIVE Questions
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1. (a) Discuss the Condensation & Addition polymerization with suitable examples?
(b) What are the Biodegradable 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 elastomers
(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) Explain 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 Principles of the Green Chemistry. [7+8]



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Time: 3 hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

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]

