Subject Code-: R10204/R10 **Set No - 1**

I B.Tech II Semester Regular Examinations June - 2012

ENGINEERING CHEMISTRY - II

(Common to All Branches)

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

Answer any FIVE Questions
All Questions carry equal marks

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1.(a) Write briefly on (i) stereo specific polymers (ii) biodegradable polymers
(b) Explain how Bakelite is prepared?
[10M + 5M]

2.(a) Discuss on compounding of plastics.
(b) Explain five applications of plastics.
[10M + 5M]

3.(a) What are the limitations of natural rubber? How does vulcanization improve the properties of rubber?
(b) Explain how Buna-N rubber is prepared? What are its important applications?
(c) Explain mastication.
[8M + 5M + 2M]

4.(a) Describe the production of carbon nanotubes by laser ablation method.
(b) Discuss the preparation of fullerenes.
(c) Explain the properties of carbon nanotubes.
[6M + 4M + 5M]

5.(a) Describe the manufacture of Portland cement by rotary kiln method.
(b) Discuss the (atleast three) properties of refractories.
[10M + 5M]

6.(a) Discuss four merits and demerits of liquid fuels.
(b) Explain the terms octane number and cetane number.
(c) Write notes on antiknocking agents that are used with petrol.
[8M + 4M + 3M]

7.(a) Describe any one mechanism of corrosion.
(b) Write any four differences between galvanizing and tinning.
(c) Discuss the constituents of paints.
[7M + 4M + 4M]

8.(a) Describe any two methods for green synthesis.
(b) Explain in brief the need of green chemistry and mention its engineering applications.
[8M + 7M]

Subject Code-: R10204/R10 **Set No - 2**

I B.Tech II Semester Regular Examinations June - 2012

ENGINEERING CHEMISTRY - II

(Common to All Branches)

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

Answer any FIVE Questions
All Questions carry equal marks

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1.(a) What is meant by coordination polymerization and explain its mechanism.
(b) Write notes on conducting polymers.
[10M + 5M]

2.(a) Discuss the properties of plastics.
(b) Write notes on
(i) Thermoplastics (ii) Thermosetting plastics (iii) Bullet proof plastics
[6M + 9M]

3.(a) Write notes on the preparation and uses of Buna-S and Buna-N rubber
(b) Define elastomers.
(c) What is natural rubber? How vulcanization of rubber improve its properties?
[8M + 3M + 4M]

4.(a) Describe the production of carbon nanotubes by arc discharge method.
(b) Discuss on the applications of fullerenes.
(c) Write the engineering applications of carbon nanotubes.
[6M + 4M + 5M]

5.(a) Discuss the effect of CO_2 and chlorides on cement concrete.
(b) Explain briefly about refractoriness of a refractory material.
(c) Write four engineering applications of ceramics.
[6M + 5M + 4M]

6.(a) What is cracking of oil? Explain moving bed catalytic cracking method
(b) Write short notes on fractional distillation of petroleum
(c) Discuss five properties of lubricants.
[6M + 4M + 5M]

7.(a) Explain four types of corrosion.
(b) Discuss how corrosion can be minimized using the cathodic protection method.
[8M + 7M]

8.(a) Describe the phase transfer catalyst for green synthesis.
(b) Give five applications of green chemistry.
(c) Discuss any four principles of green chemistry.
[6M + 5M + 4M]

Subject Code-: R10204/R10 **Set No - 3**

I B.Tech II Semester Regular Examinations June - 2012

ENGINEERING CHEMISTRY - II

(Common to All Branches)

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

Answer any FIVE Questions
All Questions carry equal marks

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1.(a) Write short notes on (i) syndiotactic polymer (ii) fibers
(b) Explain any two methods of polymerization.
(c) Write any three uses of Bakelite.
[4M + 8M + 3M]

2.(a) Write short notes on (i) Extrusion moulding (ii) Compression moulding
(b) Write short notes on fibre reinforced plastics.
(c) Explain the applications of plastics.
[6M + 4M + 5M]

3.(a) Explain how polyurethanes are prepared? What are their important applications?
(b) What is natural rubber? How is it produced from natural sources?
(c) Give five advantages of vulcanization of rubber.
[5M + 5M + 5M]

4.(a) What are carbon nanotubes? Explain SWNT and MWNT.
(b) Describe the production of carbon nanotubes by CVD method.
(c) Discuss the preparation of fullerenes.
[5M + 6M + 4M]

5.(a) Explain setting and hardening of cement .
(b) How are refractories classified? Explain the classification with examples.
(c) Explain three properties of ceramics.
[7M + 5M + 3M]

6.(a) Describe the mechanism of thick film lubrication .
(b) Explain fractional distillation of petroleum indicating the names, boiling ranges and uses of various fractions.
[5M + 10M]

7.(a) Discuss the metallic coating methods – hot dipping, electroplating and metal spraying for corrosion control.
(b) Explain the electrochemical theory of corrosion.
[9M + 6M]

8.(a) Discuss six principles of green chemistry .
(b) Explain the importance of green chemistry.
(c) Describe the aqueous phase method for green synthesis.
[6M + 3M + 6M]

Subject Code-: R10204/R10 **Set No - 4**

I B.Tech II Semester Regular Examinations June - 2012

ENGINEERING CHEMISTRY - II

(Common to All Branches)

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

Answer any FIVE Questions
All Questions carry equal marks

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1.(a) Write about the preparation, properties and uses of polystyrene and cellulose nitrite.
(b) Explain condensation polymerization with example.
[12M + 3M]

2.(a) Explain any two types of moulding techniques that are employed for plastics.
(b) Write briefly about
(i) Glass fibre reinforced plastics (ii) Bullet proof plastics (iii) Nylons
[6M + 9M]

3.(a) Write in detail about compounding of rubber.
(b) Explain the engineering applications of rubber.
(c) What is Gutta percha?
[6M + 6M + 3M]

4.(a) Discuss any one method for the synthesis of carbon nanotubes.
(b) Explain the engineering applications of carbon nanotubes.
(c) Mention the properties of fullerenes.
[6M + 5M + 4M]

5.(a) Explain how Portland cement is manufactured?
(b) Define glazed ceramic materials.
(c) Give three applications of refractories.
[10M + 2M + 3M]

6. Write short notes on
(i) Refining of gasoline (ii) Reforming of gasoline (iii) gasoline from polymerization
(iv) cloud and pour point (v) fire and flash point
[3M + 3M + 3M + 3M + 3M]

7.(a) Explain the factors influencing the rate of corrosion of a metal.
(b) Explain differential aeration corrosion and pitting corrosion.
[8M + 7M]

8.(a) Explain aqueous phase method and supercritical fluid extraction method of green synthesis.
(b) Discuss the necessity of green chemistry.
[12M + 3M]