

GUJARAT TECHNOLOGICAL UNIVERSITY
BE SEM-III Examination-Dec.-2011

Subject code: 130102**Date: 15/12/2011****Subject Name: Chemistry for Aeronautical Engg.****Time: 2.30 pm -5.00 pm****Total marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a) Which are the “Elementary principles to calculate amount of air required for combustion of unit quantity of fuel”. 07
- (b) Differentiate chemical corrosion from electrochemical corrosion. Discuss the mechanism of electrochemical corrosion. 07
- Q.2 (a) Explain briefly the physical properties of metals with its examples. 07
- (b) Enlist the various methods for softening of water. Discuss any one in detail. 07
- OR
- (b) Explain the comparisons between solid, liquid and gaseous fuel. 07
- Q.3 (a) How polymers can be classified. Discuss any two types in detail. 07
- (b) Explain briefly “Heat treatment” processes. 07
- OR
- Q.3 (a) What do you mean by chemical conversion coating? Describe phosphate coating and chromate coating in detail. 07
- (b) What are the drawbacks of raw rubber? Give the advantages of vulcanization. 07
- Q.4 (a) In which situation, the thermal insulators are used? Give the characteristics of an ideal thermal insulator. 07
- (b) Give the properties and uses of common refractory bricks. 07
- OR
- Q.4 (a) Describe the preparation, properties and uses of: (i) Polyester (ii) Poly Acrylonitrile (PAN). 07
- (b) Define lubricant and write a short note on “Mechanism of Lubrication”. 07
- Q.5 (a) Write a short note on “Artificial abrasives”. 07
- (b) Describe the application of IR spectroscopy. 07
- OR
- Q.5 (a) Write a short note on energy crisis and its managements. 07
- (b) Explain the characteristics of good fibers. 07
