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Total No. of Questions : 8]

[Total No. of Printed Pages : 2

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F. E. Examination - 2012

ENGINEERING CHEMISTRY

(2012 Course)

Time : 2 Hours]

[Max. Marks : 50

**Instructions :**

- (1) Black figures to the right indicate full marks.
- (2) Assume suitable data, if necessary.
- (3) Neat diagrams must be drawn wherever necessary.

**Q.1)** (A) Explain the Methods of Internal Treatment of Boiler Feed Water. [06]

(B) Explain different types of Electronic Transitions that occur in an organic molecule after absorbing UV Radiations. [06]

OR

**Q.2)** (A) Explain any six principles of Green Chemistry. [06]

(B) Explain the pH metric titration of mixture of weak acid - strong acid against standard alkali, giving chemical reactions, procedure, titration curve and calculations. [06]

**Q.3)** (A) Explain Bulk and Emulsion Polymerization Techniques. [06]

(B) What is Biodiesel ? Explain the reaction with conditions involved. Give advantages and disadvantages. [06]

OR

**Q.4)** (A) Explain Kevlar and FRP with respect to their properties and applications. [06]

(B) Explain Proximate Analysis of Coal. [06]

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- Q.5) (A) Explain the structure of Fullerene. How does it influence its properties and applications ? [05]
- (B) Describe the use of sodium alanate for Hydrogen Storage. [04]
- (C) Explain the Storage of Hydrogen in compressed and liquified form. Explain difficulties in the said Storage Systems. [04]

OR

- Q.6) (A) Explain the Isotopes of Carbon and Hydrogen. [05]
- (B) Explain the steam reforming of Methane to obtain Hydrogen Gas. [04]
- (C) Discuss the types of CNT with respect to their structure. Give their applications. [04]
- Q.7) (A) Explain the Cathodic Protection of a Underground Structure. Give the principle involved. [05]
- (B) How does the nature of environment influence the rate of Corrosion ? Explain any four factors with examples. [04]
- (C) Discuss various steps involved in Powder Coating. [04]

OR

- Q.8) (A) Explain the Mechanism of Dry Corrosion. Discuss the Oxidation Corrosion in case of Mg, Cr, Mo. [05]
- (B) How is Steel Galvanized ? Explain the process with the help of a flow diagram. [04]
- (C) Give conditions under which the Wet Corrosion Occurs. Explain the Mechanism of Wet Corrosion by Hydrogen Evolution with suitable example. [04]