

Registration No. :

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Total number of printed pages – 2

B. Tech
BSCC 2201 (Old)

Special Examination – 2012

CHEMISTRY – II

Full Marks – 70

Time – 3 Hours

Answer Question No. 1 which is compulsory and any **five** from the rest.

The figures in the right-hand margin indicate marks.

(At: wt: Ca = 40, Mg = 24, Na = 23, S = 32, O = 16, H = 1, Cl = 35.5, N = 14, Cr = 52, K = 39)

1. Answer the following questions : 2 × 10
- (a) What are the salt responsible for the temporary and Permanent hardness ?
- (b) Calgon treatment prevent Scale formation in boilers. Give reason.
- (c) Why hardness express in terms of CaCo₃ Equivalent ?
- (d) What do you mean by corrosion ?
- (e) Define Pilling Bed-worth rule.
- (f) Why carbonate condinotioning is not suitable for High pressure boiler ?
- (g) What do you mean by water gas ?
- (h) What do you mean by Photo chemical smog ?
- (i) What are repeating unit of nylon-6 and nylon-66 ?
- (j) What do you mean by acid Rain ?
2. (a) Calculate the G.C.V. and N.C.V. of coal sample having the following composition : 4

C = 70%, H₂ = 6%, O₂ = 6%, S = 4.5%, N₂ = 4.1% and Ash = 6.4%

P.T.O.

- (b) What are the difference between addition polymerization and condensation polymerization ? 6
3. (a) What do you mean by softening of water ? How it is carried out by zeolite process ? What are limitation of process ? 5
- (b) What is ultimate analysis ? What are the parameter analyzed in ultimate analysis ? 5
4. (a) Discuss the toxic effect of CO and cyanide pollutants. 5
- (b) What are the cause of environmental pollution ? 5
5. (a) Explain the mechanism of following type of corrosion : 2.5 × 2
- (i) Electrochemical corrosion
- (ii) Differential aeration corrosion.
- (b) 50 ml of standard hard water(1 ml =1 mg CaCO₃) required 90 ml of EDTA solution for detection of end-point. 50 ml of water sample required 18 ml of EDTA solution and 50 ml of the boiled water sample required 11 ml EDTA solution. Calculate the carbonate and non-carbonate hardness of the water sample. 5
6. (a) What do you mean by proximate analysis ? How you find moisture content in coal by proximate analysis ? 5
- (b) What do you mean byGreen house effects ? Discuss it effect 5
7. Write a short notes on the following : 5 × 2
- (a) cathodic protection
- (b) caustic embrittlement.
8. (a) What are various type of polymerization ? Explain with example. 5
- (b) Write down preparation and properties and uses of following : 5
- (i) Bakelite
- (ii) Silicon rubber.