[Total No. of Questions - 9] [Total No. of Printed Pages - 2]

Dec-24-0063 NEP

CHM-111 [Applied Chemistry (Group-B)]

B.Tech-1st CBCS/NEP

Time : 3 Hours Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note: Attempt five questions in all, select one question each from section A, B, C, D. Section E (Question-9) is compulsory.

SECTION-A

1. (a) What do you mean by ion-exchange process? Write its merits and demerits. (6)

   (b) What are the water quality physical parameters? Explain their significance. (6)

2. (a) Discuss the variation of molar conductivity with concentration for (i) strong electrolyte (ii) weak electrolyte (6)

   (b) What is fuel cell? Write the reaction of an oxygen-hydrogen fuel cell. (6)

SECTION-B

3. (a) What do you understand by caustic embrittlement? Discuss its consequences. (6)

   (b) Write a note on electroplating and galvanization. (6)

4. (a) What is the principle of UV spectroscopy? Discuss applications. (6)

   (b) State Hooke's Law. What are the factors affecting vibrational frequencies? (6)

SECTION-C

5. (a) What do you understand by power alcohol? Discuss its advantages and disadvantages. (6)

   (b) Explain the ultimate analysis of coal along with significance of the quantitates estimated in the analysis. (6)

6. (a) Write a short note on La_2O_3 and ZrO_2 in communication. (6)

   (b) What are Metal oxides? Discuss the application of these oxides in ICT. (6)

SECTION-D

7. (a) What are polymers? What is glass transition temperature of polymers? Discuss the factors affecting it. (6)

   (b) Write a short note on: (a) PVC (b) PMMA. (6)

8. (a) Write a short note on synthesis, properties and uses of Fullerenes. (6)

   (b) What are nano-materials? Discuss its properties. (6)

SECTION-E (Compulsory)

9. Answer all the questions: (6×2=12)

   (a) Define specific conductance.

   (b) Differentiate between temporary hardness and permanent hardness.

   (c) Define Lexan and Kevlar.

   (d) Give applications of CNT.

   (e) What is knocking?

   (f) Differentiate: Symmetric and asymmetric stretching vibrations.