



C09-CHPP-104/C09-EE-104

3036

BOARD DIPLOMA EXAMINATION, (C-09)

MARCH/APRIL—2014

DEEE—FIRST YEAR EXAMINATION

ENGINEERING CHEMISTRY AND  
ENVIRONMENTAL STUDIES

Time : 3 hours ]

[ Total Marks : 80

---

PART—A

3×10=30

**Instructions** : (1) Answer **all** questions.

(2) Each question carries **three** marks.

(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. Write electronic configurations of sodium and copper.
2. Define atomic number and mass number. Find the number of neutrons in  ${}_{11}\text{Na}^{23}$ .
3. Define mole. Calculate the no. of moles present in 128 g of oxygen.
4. What are buffer solutions? Mention two uses of buffer solutions.
5. Differentiate between electrochemical equivalent and chemical equivalent.
6. Define soft water and hard water.
7. Define the terms elastomer and plastics.
8. State the characteristics of a good fuel.
9. What is acid rain? Give two effects of it on living organisms.
10. Define producers, consumers and decomposers with examples.

**PART—B**

10×5=50

- Instructions :** (1) Answer *any five* questions.  
(2) Each question carries **ten** marks.  
(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11.** (a) Briefly explain about the quantum numbers. 8  
(b) Write four quantum numbers for the electron of hydrogen atom. 2
- 12.** (a) Explain the terms molarity and normality. 6  
(b) Define pH. Calculate the pH of 0.001 M HCl. 4
- 13.** (a) Explain electrolytic refining of metals. 6  
(b) Explain about gangue and flux with suitable examples. 4
- 14.** (a) Define electrolysis. Explain the mechanism of electrolysis of molten NaCl. 6  
(b) Write any four differences between electrolytic cells and galvanic cells. 4
- 15.** (a) What is rusting of iron? Give mechanism of rusting of iron. 6  
(b) Explain the formation of composition cell with an example. 4
- 16.** (a) Explain Permutit method of softening hard water. 6  
(b) Explain the following : 4  
(i) Sedimentation  
(ii) Chlorination
- 17.** (a) Write any four advantages of plastics over traditional materials. 4  
(b) What are thermoplastics and thermosetting plastics? Write any four differences between them. 2+4
- 18.** (a) Explain the causes of air pollution. 6  
(b) Explain the effect of following pollutants on human beings : 4  
(i) Carbon monoxide (CO)  
(ii) Peroxyacetyl nitrate (PAN)

\*\*\*