C16–EE-104/C16–CHPP–**104**

6037

BOARD DIPLOMA EXAMINATION, (C–16)
OCT/NOV—2018
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 any three differences between orbit and orbital.

2. Write any three characteristics of ionic compounds.

3. Define saturated, unsaturated and supersaturated solutions.

4. Define buffer solution. State their applications.

5. What is electrochemical series? Give its significance.

6. Write any three disadvantages of hard water in industries.

7. Write any three characteristic properties of plastics.

8. Define primary and secondary fuels. Give examples.

9. Write any three threats to biodiversity.

10. Write a short note on greenhouse effect.

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PART—B   10×5=50

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Instructions : (1) Answer *any* **five** questions.

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

(3) The answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. *(a)* Explain:

  (i) Aufbau's principle

  (ii) Hund's rule with suitable examples

  (b) Define unit cell. Draw the structures of unit cell of NaCl and CsCl.

12. *(a)* Define Normality. Calculate the normality of 250 ml of solution containing 9.8 grams H_2SO_4 (M. Wt of H_2SO_4 98)

  (b) Explain Lewis theory of acids and bases.

13. *(a)* Write any five characteristics of metals.

  (b) Explain purification of metals by electrolytic refining.

14. *(a)* Explain the construction and working of galvanic cell with neat diagram.

  (b) Explain Faraday's Laws of electrolysis.

15. *(a)* What is rusting of iron? Explain the rusting of iron with chemical equations.

  (b) Explain impressed voltage method.

16. *(a)* What are the salts causing temporary and permanent hardness? Give their formulae.

(b) Explain softening of hard water by ion-exchange method.

17. *(a)* Write the preparation and uses of Buna-S and Neoprene rubber.

(b) Write any five differences between thermoplastics and thermosetting plastics.

18. *(a)* Define water pollution. Explain any four causes of water pollution.

(b) Write short note on:

  (i) Acid rains

  (ii) Ozone layer depletion.

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