C09–CHPP–104/C09–EE–**104**

3036

BOARD DIPLOMA EXAMINATION, (C–09)
OCT/NOV—2013
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. What are the limitations of Bohr atomic model?

2. What is oxidation number? Calculate the oxidation number of Cl and Cr in $KClO_3$ and K_2CrO_4.

3. Define 'normality'. Give the formula and units.

4. State the Arrhenius concept of acids and bases. What are its limitations?

5. Define the following terms :

(a) Faraday

(b) Electrochemical equivalent

(c) Chemical equivalent

6. What is meant by reverse osmosis? What are its advantages?

7. Write any six characteristic properties of plastics.

8. What are primary fuels and secondary fuels? Give two examples for each.

9. What is 'greenhouse effect'? Write its effects.

10. Mention the causes of water pollution.

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)* Describe about quantum numbers. 6

(b) Define 'ionic bond'. Explain with an example. 4

12. *(a)* Explain about molarity. Calculate the weight of $KMnO_4$ present in 500 ml of $0.1M$ $KMnO_4$ solution (molarity wt. of $KMnO_4 = 158$). 5

(b) Explain about Bronsted and Lowry theory of acids and bases with suitable examples. 5

13. *(a)* Define an alloy. Give the composition and uses of any two alloys. 5

(b) Explain froth floatation process of concentration of ore. 5

14. *(a)* Explain the following cells with examples : 6
  (i) Composition cell
  (ii) Stress cell
  (iii) Concentration cell

(b) How is corrosion prevented by sacrificial anode method? 4

15. *(a)* What are the postulates of Arrhenius theory of electrolytic dissociation? 6

(b) A current of 2 amp passing through silver nitrate solution for 10 minutes deposits 1·4292 g of silver. What is the electrochemical equivalent of silver? 4

16. *(a)* Describe the softening of water by permutit method with a neat labelled diagram. 6

(b) What are the essential qualities of drinking water? 4

17. *(a)* What are plastics? Write the preparation and uses of the following plastics : 6

    (i) Polythene

    (ii) PVC

   (b) Distinguish the following plastics into thermoplastics and thermosetting plastics : 4

    (i) Bakelite

    (ii) Polystyrene

    (iii) Nylon

    (iv) Teflon

18. *(a)* Explain the causes of air pollution. 6

   (b) Define the following terms : 4

    (i) BOD

    (ii) COD

    (iii) Environment

    (iv) Pollution

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