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C09–A–104/C09–AA–104/C09–AEI–104/C09–BM–104/
C09–C–104/C09–CM–104/C09–CHPP–104/C09–CHPC–104/
C09–CHOT–104/C09–CHST–104/C09–EC–104/C09–EE–104/
C09–IT–104/CO9–M–104/C09–MET–104/C09–MNG–104/
C09–PET–104/C09–TT–104/C09–RAC–104

3004

BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2017

FIRST YEAR (COMMON) 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 the differences between oxidation number and valency.

2. What is meant by octet rule?

3. Write about solid, liquid and gaseous solutions. Give examples.

4. Define buffer solution. What are the different types of buffers? Give examples.

5. Define temporary and permanent hardness.

6. State the characteristics of plastics.

7. What is the composition and uses of water gas and producer gas?

8. Give any three differences between the galvanic cells and electrolytic cells.

9. Define water pollution. Mention any two causes of water pollution.

10. What are the primary and secondary pollutants? Give 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 the valuation is the content but not the length of the answer.

11. *(a)* Define orbital. Draw the shapes of *s* and *p* orbitals. 4

(b) Describe the salient features of the modern periodic table. 6

12. *(a)* Explain molarity and normality. Give the equations to calculate them. 5

(b) Write a note on ionic product of water. 5

13. *(a)* Define alloy, roasting and calcination. Give examples. 6

(b) Explain electrolytic purification of metals. 4

14. *(a)* Write the postulates of Arrhenius theory of electrolytic dissociation. 5

(b) Define EMF. Calculate the EMF of the galvanic cell. Pb / Pb^2 / /Ag / Ag. The standard oxidation potential of Pb 0 13 V. The standard oxidation potential of Ag 0 8 V. 5

15. *(a)* Define hard and soft water. What are the salts causing hardness to water? 4

(b) Explain the softening of hard water by Permutit method. 6

16. *(a)* Define corrosion. What are the factors influencing the rate of corrosion? 4

(b) Explain the different galvanic cells formed during the corrosion. 6

17. *(a)* What are plastics? Give the advantages and disadvantages of the plastics. 6

(b) Give the preparation and uses of polythene and teflon. 4

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

(b) Write a short note on ozone layer depletion. 4

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