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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)

MARCH/APRIL—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. What are the fundamental particles of atom? Give the charge and mass of them.

2. State modern periodic law. How many periods are present in the modern periodic table?

3. Define solute, solvent and solution. Give examples.

4. Define conjugate acid-base pair. Give one example.

5. Mention any three industrial disadvantages of hard water.

6. Define fuel. Mention any two characteristics of good fuel.

7. Give the structure of natural rubber.

8. What are strong electrolytes and weak electrolytes? Give examples.

9. Define BOD and COD.

10. Explain greenhouse effect.

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)* Explain Bohr's atomic model. What are its limitations? 6

(b) Give the differences between ionic compounds and covalent compounds. 4

12. *(a)* Describe Arrhenius theory of acids and bases. What are its limitations? 5

(b) What is the weight of Na_2CO_3 (mol. wt. 106) dissolved in 500 ml of 0·4 *M* solution? 5

13. *(a)* Write the composition and uses of Nichrome and German silver. 5

(b) Describe froth floatation process. 5

14. *(a)* Write a note on electrochemical series. 4

(b) State and explain Faraday's laws of electrolysis. 6

15. *(a)* Explain the sacrificial anode method of prevention of corrosion. 6

(b) Write about stress cell and concentration cell. Give examples. 4

16. *(a)* Explain different polymerization reactions with examples. 6

(b) Write the disadvantages of raw rubber. 4

17. *(a)* Explain the reverse osmosis. What is its advantage? 5

(b) Give the essential qualities of drinking water. Give one method of sterilization of water. 5

18. *(a)* Explain producers, consumers and decomposers. Give examples. 6

(b) Explain the causes of air pollution. 4

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