5004

BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER/NOVEMBER-2018
FIRST YEAR EXAMINATION

ENGINEERING CHEMISTRY & ENVIRONMENTAL STUDIES

Time : 3 Hours]   [Total Marks: 80
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PART-A

2X15=30

Instructions   :   1. Answer any **15** questions.

2. Each question carries **2** marks.

1. Write the electronic configuration of Chromium (At no. -24) and Copper (At No. -29)

2. List any two differences between ionic compounds and covalent compounds

3. Draw the shapes of p-orbitals.

4. Calculate the Oxidation number of Cr in $K_2Cr_2O_7$

5. What are saturated and unsaturated solutions?

6. Calculate the number of moles present in 1kg of Sodium Hydroxide.

7. Define ionic product of water and p^H

8. Write any two applications of Buffer Solutions.

9. Write any two differences between metallic conductors and Electrolytic conductors.

10. Define Electro Chemical equivalent and chemical equivalent.

11. Define Degree of hardness of water. Mention its units

12. List any four essential qualities of drinking water.

13. Give two examples each for Thermoplastics and Thermosetting plastics.

14. Mention the chemical name and structural formula of Natural Rubber.

15. What are Primary and Secondary fuels? Give examples

16. Give the composition and two uses of water gas.

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17. Define Pollutant and contaminant.

18. What are Producers and Consumers? Give examples.

19. What are renewable energy sources? Give examples.

20. Define Ecosystem and Biodiversity.

PART-B

10X5=50

Instructions : 1. Answer any **Five** questions.
2. Each question carries **ten** marks.

21. (a) State the Postulates of Bohr's atomic theory.

(b) Write four quantum numbers for the valence i.e,. (last) electron of Sodium atom.

22. (a) Define Molarity. Calculate the molarity of 250ml solution containing 5.3g of sodium carbonate (GMW=106).

(b) Explain Arrhenius theory of Acids and Bases

23. (a) Define the terms   (a) Mineral   (b) Ore   (c) Gangue .

(b) Explain the process of electrolytic refining of metals.

24. (a) State and explain Faraday's Laws of Electrolysis.

(b) What is electrochemical series? What is its significance?

25. (a) What is Rust? Explain the mechanism of rusting of iron with chemical equations.

(b) Explain impressed voltage method of prevention of Corrosion.

26. (a) Explain Permutit process of softening hard water.

(b) Write any four disadvantages of using hard water in industries

27. (a) Explain Addition Polymerisation and Condensation Polymerisation with one example each.

(b) Write any four advantages of Plastics over traditional materials.

28. (a) Explain any three causes of Air Pollution.

(b) Write a brief note on Green House Effect.

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