



C16/A/AA/CHST/C/CM/EC/EE/M/

AEI/MNG/IT/PKG-104

5004-A

**BOARD DIPLOMA SUPPLEMENTARY (INSTANT)
EXAMINATION, (C-16)**

JUNE - 2019

**FIRST YEAR (COMMON) EXAMINATION
ENGINEERING CHEMISTRY &
ENVIRONMENTAL STUDIES**

Time : 3 Hours]

[Total Marks : 80

PART - A

2×15=30

Instructions :

- (1) Answer any 15 questions.
- (2) Each question carries 2 marks.
- (3) Answer should be brief and straight to the point and shall not exceed five simple sentences.

- 1 Define Orbital. Draw the shapes of d-orbitals.
- 2 Explain the formation of covalent bond in H₂ molecule.
- 3 Define Ionic bond. Give an example.
- 4 Define oxidation. Give an example.
- 5 Calculate the molarity of 500 ml solution containing 4 grams of sodium hydroxide. (GMW of sodium hydroxide is 40)
- 6 Define normality. Give formula.
- 7 What is conjugate acid-base pair ? Give example.

5004-A]

1

[Contd...

- 8 Define P^H . Calculate P^H of 0.001 M HCl solution.
- 9 Write any two differences between electrolytic cell and Galvanic cell.
- 10 What is electro chemical series ? Write any two significance of electro chemical series.
- 11 Define soft water and hard water.
- 12 State any two essential qualities of drinking water.
- 13 Write any two advantages of plastic over traditional material.
- 14 Write the chemical equation of formation of polyethylene.
- 15 What are the primary fuels and secondary fuels ? Give two examples for each.
- 16 State the composition and uses of producer gas.
- 17 Define the terms pollutant and contaminant with an example each.
- 18 What are producers and consumers ? Give examples.
- 19 What is Green house effect ?
- 20 What is acid rain ? What are its effect ?

PART - B

10×5=50

Instructions :

- (1) Answer any **FIVE** questions.
- (2) Each question carries **TEN** marks.
- (3) Answer should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 21 (a) Write postulates of Bohr's atomic model. 6
- (b) State and explain Hund's rule. 4

- 22** (a) Define equivalent weight of acid. Calculate the equivalent weight of **5**
- (i) H_2SO_4 (GMW = 98 gm)
- (ii) Na_2CO_3 (GMW = 106)
- (b) Explain the Bronsted-Lowry acid-base theory. **5**
- 23** (a) Write the differences between the properties of metals and non-metals. **5**
- (b) Explain the electrolytic refining of metal. **5**
- 24** (a) Explain Faraday's laws of electrolysis. **6**
- (b) What is Galvanic cell ? Describe its construction. **4**
- 25** (a) Define corrosion. State any four factors which influence the rate of corrosion. **5**
- (b) What is rusting ? Explain the mechanism of rusting of iron. **5**
- 26** (a) Briefly explain the ion-exchange process. **6**
- (b) What is reverse osmosis ? Mention two advantages. **4**
- 27** (a) Write any five differences between thermoplastics and thermosetting plastics. **5**
- (b) Define and explain Vulcanization Rubber. **5**
- 28** (a) Explain any six causes of water pollution. **6**
- (b) Explain any four effects of air pollution of human beings. **4**