



C16S-A/AA/CHST/EI/MET/MNG/IT/TT/
PKG/C/CM/EC/EE/M-104

5104

BOARD DIPLOMA EXAMINATION, (C-16S)

MARCH / APRIL - 2019

I SEMESTER (COMMON) EXAMINATION

ENGINEERING CHEMISTRY & ENVIRONMENTAL STUDIES - 1

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 Atomic number and Mass number.
2. State Aufbau principle.
3. Write any two differences between Orbit and Orbital.
4. Define covalent bond. Give an example.
5. Calculate the oxidation number of Mn in MnO_2 and $KMnO_4$.
6. Define the terms :
(a) Solution (b) Solvent
7. Define Mole. Find the no. of moles in 250 gm of $CaCO_3$.
8. Define Normality. Write its formula.

- 9 5.3 gm of Na_2CO_3 is dissolved in 500 ml of solution. Find its normality.
- 10 What is Conjugate acid-base pair ? Give an example.
- 11 What are the limitations of Lewis theory of Acids and Bases ?
- 12 What is ionic product of water ?
- 13 Calculate the pH of 0.0005 M H_2SO_4 solution.
- 14 Define the terms soft water and hard water.
- 15 Define degree of hardness of water and give its unit.
- 16 Mention any four essential qualities of drinking water.
- 17 Write two advantages of Reverse Osmosis.
- 18 Define pollutant and pollution. <http://www.sbtetonline.com>
- 19 What are conventional energy sources ? Mention any two examples.
- 20 Define the terms producers and consumers. Give one example for each.

<http://www.sbtetonline.com>

Whatsapp @ 9300930012

Your old paper & get 10/-

पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से

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 the postulates of Bohr's atomic theory. | 6 |
| | (b) Explain the shapes of p and d-orbitals with diagrams. | 4 |
| 22 | Explain the four quantum numbers. | 10 |
| 23 | (a) Explain the bond formation in Hydrogen molecule. | 4 |
| | (b) Write any six differences between Ionic and Covalent Compounds. | 6 |
| 24 | (a) Classify solutions based on their physical state and give examples. | 6+4 |
| | (b) Find the weight of NaOH required to prepare 500 ml of 0.2 M solution. | |
| 25 | (a) Explain Arrhenius (GMW of NaOH is 40) theory of Acids and Bases with examples. | 5+5 |
| | (b) Define Buffer solution. Write the applications of buffer solutions. | |
| 26 | (a) Write any four disadvantages of using hard water in industries. | 4 |
| | (b) Explain zeolite method for softening of hard water. | 6 |
| 27 | Explain municipal treatment of water for drinking purpose. | 10 |
| 28 | (a) Define the terms : | 4 |
| | (i) BOD (ii) COD | |
| | (b) What is biodiversity ? Explain the threats to biodiversity. | 6 |

- 26 (a) List any six causes of noise pollution. 6
(b) List any four applications of Doppler Effect. 4
- 27 (a) Derive the expression for balancing condition of wheat stone's bridge. 6
(b) If 10 ohm and 30 ohm are connected in left and right gaps in meter bridge experiment find the balancing length. 4
- 28 (a) Derive an expression for moment couple on a bar magnet placed in uniform magnetic field. 6
(b) List any four characteristics of magnetic lines of force. 4

http://www.sbtetonline.com

Whatsapp @ 9300930012

Your old paper & get 10/-

पुराने पेपर्स भेजे और 10 रुपये पायें,

Paytm or Google Pay से