



## END Semester Examination

### Planning Division – (CH 105) Basic Chemistry

Course: B.Tech

Branch: Applied Science

Semester: Sem I

Year: 2014-2015

Max.Marks:60

Duration: 3 Hours

Time:- 10.00-1.00

Date : 29 / 11 / 2014

#### Instructions:

MIS No.

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1. Figures to the right indicate the full marks.
2. Mobile phones and programmable calculators are strictly prohibited.
3. Writing anything on question paper is not allowed.
4. Exchange/Sharing of anything like stationery, calculator is not allowed.
5. Assume suitable data if necessary.
6. Write your MIS Number on Question Paper

Q1) Attempt following questions as directed.

- A) Define the terms isotopes and isobars by giving two examples each. (2)
- B) Write a short note on "Pauli,s Exclusion Principle". (2)
- C) Write a short on Octet Rule. (3)

Draw Lewis cross-dot diagrams of two examples in which Octet Rule is obeyed.

(OR)

- C) Write a short note on Hund's Rule of maximum spin multiplicity.
- D) State the main Postulates of Bohr's Atomic Theory. (5)
- Write the equation which gives the energy of electron in  $n^{\text{th}}$  shell.

Q2) Attempt following questions.

- A) Explain with the reactions at Anode and Cathode, electrolysis of fused NaCl. (2)
- Give reactions at anode and at cathode. (Diagram not necessary)
- B) What is "Degree of Ionisation"? State the factors affecting it. (2)
- C) What is an electrode? Give its types with examples. (3)

(Or)

- C) Write the reactions taking place at Anode and at Cathode in Lead Storage Cell.

- D) What is an electrolytic cell? Give the reactions taking place at Anode and at (5)
- i) Electrolysis of aqueous dilute solution of NaCl using Platinum electrodes.
  - ii) Electrolysis of aqueous  $\text{Cu}(\text{NO}_3)_2$  solution using Ag electrodes.
  - iii) Electrolysis of aq. concentrated NaCl solution using Platinum electrodes.

Q3) Attempt following questions.

- A) What is refining of a metal? Name the different methods used for it. (2)
- B) Explain the term Slag by giving an example. (2)
- C) Explain the terms "Forging" and "Soldering" of metals giving examples. (3)
- D) Name different methods used for preparation of different Alloys. (5)  
Explain "Fusion Method" to prepare Brass from the respective metals.

(Or)

- D) What are ferrous Alloys? Name such 2 Alloys. (5)  
Give the composition and uses of following alloys.  
a) Dutch Metal,      b) Bronze      and      c) Monal metal.

Q4) Answer following questions as directed.

- A) Write a short note on Classification of Plastics based on heating effect. (2)
- B) What is Vulcanization of a rubber? Describe the process involved in it. (2)
- C) Explain "Co Polymerization" by giving the reaction involved in the preparation of Nylon 6,6. (3)
- D) What kind of non-metallic materials Thermocol and Glass wool are? (5)  
Give its method of preparation, Properties and Uses.

(Or)

- D) Name the isomer involved in the formation of Natural Rubber.  
State the Properties and uses of Natural Rubber.

Q5) Answer following questions.

- A) Which gases present in atmosphere cause acid rains? (2)  
How do they cause Acid Rain?
  - B) How oxides of Nitrogen are produced? State their Harmful effects as pollutants. (2)
  - C) What are "Particulate Pollutants", Give their Classification. (3)
- (Or)
- C) What is Green House Effect? Explain its harmful effects.
  - D) What are BOD and COD? Describe a method to measure BOD. (5)
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