Reg. No..... Name: **U222**

BSC DEGREE END SEMESTER EXAMINATION APRIL - 2015
SEMESTER - 2: CHEMISTRY (CORE)
COURSE: U2CRCHE2 - THEORETICAL AND INORGANIC CHEMISTRY

Time: 3 Hrs Max. Marks: 60

SECTION A
(Answer **all** questions, each question carries 1 mark)

1 ---------- is the mathematical expression of uncertainty principle
2 The radius of K^+ ion is ---------than that of K atom
3 Isotones contains same number of ----------
4 What is the hybridization of central atom in SF_6
5 Among the following salts LiF ,KF, CsCl --------has higher ionic character
6 Bond order indicate ---------of a molecule
7 ---------- is an artificial radio active series
8 What change occurs in the atomic number of the element when nuclide emits a beta particle

(1 x 8 = 8)

SECTION B
(Answer any **six** question, each question carries 2 marks)

9 Explain different lines observed in the hydrogen spectra
10 Define Geiger-Nuttal rule and explain the terms
11 Correlate N/P ratio and nuclear stability
12 Explain the factors favoring the formation of ionic compounds
13 Oxygen molecule is paramagnetic. Why?
14 Explain band theory of metals
15 Explain the shape of ammonium ion
16 Explain Zeeman Effect.

(2 x 6 = 12)

SECTION C
(Answer any **four** questions, each question carries 5marks)

17 What is induced radioactivity? Explain.
18 Differentiate between inter and intra molecular hydrogen bonding with examples
19 Explain Born- Haber cycle and show how is it useful in determining the lattice energy of ionic compounds

20 Explain Q values of nuclear reactions
21 Explain Slators rule for calculating shielding constant
22 What are quantum numbers explain their significance

(5 x 4 = 20)

SECTION D

(Answer any **two** questions, each question carries 10marks)

23 Discuss briefly on valence bond theory for chemical bonding, what are its limitation

24 a) Explain nuclear fission reactions. How it is used in atom bomb and nuclear reactors

b) What is meant by mass defect and binding energy of nucleons?

25 Draw the MO energy diagrams of NO molecule and explain its bond order and magnetic properties.

26 Derive Born Lande equation.

(10 x 2 = 20)

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