

(4)

(iii) Effective nuclear charge and Slater's rule

DeeJeeer veed/keadee DeeJeele DeeJ muessj keae efreJeece

3. What is ionization energy? In what factors it depend? How does the ionization energy vary in a period and a group of Periodic Table?

DeeJeevee Tpee&keadee nw Uen ekeave keaej keadeWhej keaj leer nW

DeeJeevee Tpee& DeeJeele& meeJ Ceer kea DeeJeele& leLee ceh cell/keame

heej Jeeleee neeJeeer nw 7½

Unit - II

FkeaeF&- II

4. Briefly discuss the following : 2½ × 3

efrecveeJeeKeele keaeer meeJ#ehle JÜeeKÜee keaj W:

(i) Multicentre bonding

yenheavõde yevOelee

(ii) Radius-Ratio rule

esepÜee-DeveJeele efreJeece

A

(Printed Pages 7)

Roll No. _____

S-619

B.Sc. (Part-I) Examination, 2015

CHEMISTRY

First Paper

(Inorganic)

Time Allowed : Three Hours]

[Maximum Marks : 50

Note : Answer five questions in all. Question No.

1 is compulsory. Attempt one question from each unit.

keajue heeJee ðeMveeJeekeae Goej oeepeS- ðeMve mee 1 DeeJeeJeeÜee&nw

ðeJÜeekeae FkeaeF&mes Skeae ðeMve keaeJeepeS-

1. Explain the following giving reasons : 2 × 10

efrecveeJeeKeele keaeer keaej Ce meeJ#ehle meecePeeFS :

(i) Ionisation energy of nitrogen atom is greater than that of oxygen atom.

(2)

veeF Šápeve hej ceeCegkeáer DeelJeevee Tpeek Deekmeepve hej ceeCeg
mes pÚeeoe nee'er n#

(ii) ClF_3 is a T-shaped molecule

ClF_3 Skeá T-Deekáe'le keáe DeCeg n#

(iii) H_2O is a liquid while H_2S is a gas.

H_2O ōJe n#peye ekeá H_2S Skeá ieme n#

(iv) Arrange the following on the increasing
order of bond order :

efrecvee'eele keáes yevŌe keáesŠ keá yek{les >eáce celWefueeKES-

O_2^{2-} , O_2^- , O_2^+ , O_2

(v) Which noble gas is most difficult to liquify?

ekáeme DeeoMe& ieme keáes Ōe'eele keáj vee meyemes keáel' ve n#

(vi) Halogens are strong Oxidant.

n#eepeve Ōeyee Deekmeekáej keá n#

(vii) Out of He_2^+ and H_2^+ ion which one is less
stable?

He_2^+ Deej H_2^+ DeelJee celMeáeme keáce mLeelJee n#

(3)

(viii) Why NH_3 has a higher boiling point than
 PH_3 .

NH_3 keáe keáelJeekeá PH_3 mes TŌee n#

(ix) NaOH is a stronger base than Ba(OH)_2

Ba(OH)_2 keáer Dehes#ee NaOH Skeá Ōeyee #eej n#

(x) The second electron affinity of oxygen is
negative.

Deekmeepve keáer e'leee'le FuekešŌve yevŌe'ee Še+Ceelcekeá nee'ee
n#

Unit - I

FkeáF&- I

2. Write short notes on the following : $2\frac{1}{2} \times 3$

efrecve hej me'ehle e'ŠheecelJeeB e'ueeKES :

(i) Dual nature of electron

FuekešŌve keáe oenje mJe'eele

(ii) Physical significance of ψ and ψ^2

ψ leLee ψ^2 keáe Yeemlekeá cenlJe

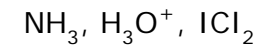
(5)

(iii) Semiconductors

meseekeav [keasmei

5. Explain VSEPR theory and on the basis of this theory explain the structure of the following :

VSEPR efmeaevle mecePeefS leLee Fme efmeaevle kea Deeej
efrecveeKee keaer mej Ueev kea JeCee keaepes : 7 1/2



Unit - III

Fkaef- III

6. Discuss preparation, properties and structure of Xenon fluorides. 7 1/2

peeeve hureej ef [the kea yeeveskaer eflee, iefje Oee&Sjebmej Ueev kea
JueKue keaepes~

7. Explain the following giving reasons : 7 1/2

efrecveeKee keas keaj Ce meefle mecePeefS :

- (i) An alkali metal has the lowest ionization energy in a period. 7 1/2

(6)

Skeā #eej dle Oeelegkeāer DeeJele&cellmymemeskeāce DeeUeveve Tpeel
nekeer n#

(ii) Alkali metals are strong reducing agents.

#eej dle OeeleS B Ōeyeye DeheUeeUekea nŌ

(iii) Beryllium and magnesium do not show any colour to the bunsen flame.

yej eeUeUe Deejj ceUeevMeUe ce yegmeve pJeeuee celWkeāF&j lie
veneRabKeles nŌ

(iv) Li F is insoluble in water.

Li F heeveer celMDelegveUeeue n#

Unit - IV

FkeāF- IV

8. Write short notes on any three of the follow-

ing : $2\frac{1}{2} \times 3$

eUeeveUeeKele celWkeāvneR leave hej me#ehle eShheCeeB eeUeeKeS :

(i) Interhalogen Compounds

Devlej-nueepeve UeeUeekeā

(7)

(ii) Inert Pair effect

DeeUeeUe Ueejce ŌeYeeUe

(iii) Silicates

eUeeUeekeāŠthe

(iv) Oxyacids of Phosphorus

HeāmHeāej me keā DeekāneeDecue

9. Why is diborane classified as an electron deficient molecule? Discuss the structure of diborane. $7\frac{1}{2}$

[eFyeesj ve keāes FuekeāšŌve DeYeeUeele DeCeg keāer lej n keUeeUeeUeekeāe
keāj les nŌ? [eFyeesj ve keāer meUj Ueevee keāer JUeeKUee keāj W