

**Avinashilingam Institute for Home Science and Higher Education for Women
Coimbatore-641 043**

Bachelor's Degree Examination –November 2017

I Semester

**Class : I UG
Major: Chemistry**

**Time: 3 hours
Max. Marks: 100**

15BCHC02 General Chemistry – II

Part A

Choose the correct answer

(10x1=10)

- As we move down a group in the periodic table, the atomic radius
a) decreases
b) increases
c) remains constant
d) extremely low
- The second ionisation energy of Sodium is _____ as compared to that of first ionisation energy
a) very high
b) very low
c) low
d) high
- Electronegativity of Beryllium is same that of
a) Boron
b) Magnesium
c) Aluminium
d) Sodium
- Among the following which has least electron affinity
a) Neon
b) Nitrogen
c) Oxygen
d) Sulphur
- When acetylene is passed through hot iron-tube at 400°C, it gives
a) Toluene
b) Benzene
c) *o*-xylene
d) Mesitylene
- 1-butyne can be distinguished from 2-butyne by using
a) Potassium permanganate
b) Br₂ Water
c) Tollen's reagent
d) Br₂ in CCl₄
- Which one of the following is covalent?
a) CaO
b) KCl
c) LiCl
d) H₂
- The compound which has the maximum polar character is
a) C-I
b) C-Br
c) C-F
d) C-S
- The geometry of ammonia is
a) Planar
b) Pyramidal
c) Angular
d) Trigonal bipyramidal
- Which of the following can form hydrogen bonds?
a) CH₄
b) H₂O
c) NaCl
d) CHCl₃

PART – B
Answer the following (5 X 6 = 30)
Answer should not exceed 400 words or two pages

11. a) Ionic radius of K^+ is smaller than that of Cl^- even though both are iso-electronic. Explain
(Or)
11. b) Explain the variation in ionization potential along a period and down a group.
12. a) List out the factors influencing the magnitude of electron affinity
(Or)
12. b) Describe Mulliken's scale of electronegativity.
13. a) Write the mechanism of electrophilic addition of acetylene
(Or)
13. b) Explain Hydroboration of alkyne with an example.
14. a) What are the characteristics of ionic compounds?
(Or)
14. b) What are Sigma and Pi bonds? Give examples.
15. a) Explain the structure of NH_3 and H_2O using VSEPR theory.
(Or)
15. b) Give short notes on hydrogen bonding.

PART – C
Answer the following (5 X 12 = 60)
Answer should not exceed 800 words or four pages

16. a) i) Explain the variation of atomic radii in a period.
ii) First ionization potential of Aluminum is lower than that of Magnesium. Explain.
(Or)
16. b) List out the variation of ionic radii in a group and period with suitable examples.
17. a) How will you measure the electronegativity using Pauling's scale?
(Or)
17. b) i) Write short notes on Alfred – Rochow electronegativity.
ii) List out any four applications of electronegativity.
18. a) i) Describe the mechanism of nucleophilic addition.
ii) What are acetylides? Give an example.
(Or)
18. b) Write short notes on the following reactions of acetylene.
i) hydrohalogenation ii) hydration iii) polymerisation
19. a) i) Define Fajan's rule and write its applications.
ii) Describe the structure of HF and N_2
(Or)
19. b) i) What is Lattice energy? How will you determine the lattice energy of $NaCl$ by Born-Haber cycle?
20. a) i) Explain the shapes of molecules involving sp^2 and sp^3d^2 hybridisation. (any one, each)
ii) Write short notes on Vanderwaal's forces.
(Or)
20. b) i) Using MO theory, Write the molecular configuration of Be_2 , CO and NO .
ii) What are the Debye and London forces?

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