Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University), Coimbatore-641 043

Bachelor's Degree Examination – November 2018

I Semester

Class : UG **Time :3 hours**

Major : Chemistry **Max. Marks: 100**

18BCHC01 – Basics of Chemistry - 1

Part-A **10 x 1=10**

Choose the correct answer

1. The elements in which the last electron enter into p-orbital is known as
   a. s-block elements b. p-block elements c. d-block elements d. f-block elements

2. According to which principle an orbital can contain a maximum of two electrons and these electrons must be of opposite spin
   a. pauli's b. Aufbau's c. Hund's rule d. none of these

3. Purification of crude organic solid sample is done by
   a. filtration b. recrystallization c. distillation d. extraction

4. Mixture of two liquids having close boiling points are separated by
   a. distillation b. extraction c. filtration d. fractional crystallizatior

5. Which is the most stable conformation of ethane
   a. skew b. staggerd c. eclipsed d. gauch

6. Cyclohexanol can be converted into cyclohexene by heating with
   a. dil.HCl b. Conc. H_2SO_4 c. Friedal crafts reagent d. Schiff's reagent

7. An ionic bond is formed between
   a. two metal atom
   b. two non-metal atom
   c. One metal atom and one non-metal atom
   d. one metal atom and on mettaloid atom

8. The polarity of co-valent bond is due to
   a. lesser electro negativity difference between two atoms
   b. Greater electro negativity difference between two atoms
   c. lesser bond energy
   d. greater bond energy

9. The collision frequency of a gas is
   a. directly proportional to the square root of absolute temperature
   b. directly proportional to the absolute temperature
   c. inversely proportional to the pressure of the gas
   d. inversely proportional to the absolute temperature

10. The mean free path is
    a.directly proportional to the pressure of the gas
    b. directly proportional to the root mean square velocity of gas
    c. directly proportional to the temperature of the gas
    d. directly proportional to the absolute temperature of the gas

Part B 5 X 6=30

Answer the following

Answer should not exceed 400 words or two pages

11.a. Discuss the basis of Hund's rule.

(or)

11.b. Discuss in detail about the pauli's exclusion principle.

12.a. Write short note on simple distillation.

(or)

12.b. How will you purify the solid organic compounds?

13.a. Discuss the mechanism of chlorination of methane.

(or)

13.b. Write a note on (i) Wurtz reaction (ii) Kolbe's reaction

14.a. What is Fajan's rule? Give its applications.

(or)

14. b. What are the characteristics of ionic bond?

15.a. Explain the following terms (i) Boyle's law (ii) Charless law

(or)

15. b.How does the van der Waal's equation explains the behavior of gases at
(i) High Pressure (ii) low pressure

Part C 5 x 12=60

Answer the following

Answer should not exceed 800 words or four pages

16.a. (i) What are quantum numbers? Explain in detail.

(or)

16. b. (i) Explain how the elements are arranged in a long form of a periodic table.
(ii)Discuss how elements can be classified into s,p,d and f blocks.

17.a. Draw a diagram and explain fractional distillation of solvents.

(or)

17. b. Write a note on (i) sublimation (ii) Extraction with solvents (iii) steam distillation

18.a. Draw and explain the conformations of n-butane.

(or)

18. b. (i) Write any three methods of preparations of cycloalkanes.
(ii) Explain any four reactions of cycloalkanes.

19.a. With a neat orbital diagram explain the formation of H_2, O_2 and N_2 molecules.

(or)

19. b. (i) What is lattice energy? (ii) How is it determined using Born – Haber cycle.

20.a. (i) Derive the kinetic gas equation for an ideal gas.

(or)

20. b.(i) Deduce Avagadro's law from the kinetic gas equation.
(ii) Define mean free path and collision diameter.

****