II SEMESTEREXAMINATION 2017-18

SUBJECT – CHEMISTRY

STD.-XI **MARKS- 70**

DATE-11/03/18 **TIME- 3 hrs.**

General Instruction:

1. All the questions are compulsory.
2. Section A contains Q.No.1to 4of multiple choice type of questions carrying one mark each.Q.No.5 to 8 are very short answer type of questions carrying one mark.
3. Section B contains Q.No.9 to 15 of short answer type of questions carrying two marks each. Internal choice is provided to only one question.
4. Section C contains Q.No.16 to 26 of short answer type of questions carrying three marks each. Internal choice is provided to only one question.
5. Section D contains Q. No. 27 to 29 of long answer type of questions carrying five marks each. Internal choice is provided to only one question.
6. Use log-table if necessary. Use of calculator is not allowed.
7. Given data:

   Avogadro's Number/ N =6.022X1023

   Gas constant, R=8.314 J K-1 Mol-1

   Atomic Mass, C=12, O=16, H=1 , N=14

SECTION

1. Avogadro's number is the number of particles present in
   a. 1 molecule b.1 atom c. 1kg d. 1 mole
2. Which of the atomic numbers represent s-block elements?
   a. 7,15 b. 3,12 c. 6,12 d. 9,17
3. Which one of the following compounds is an example of alkynes?
   a.C_3H_8 b. C_3H_6 c.C_3H_4 d.C_4H_8
4. The compound commonly known as inorganic benzene is
   a. B_6H_6 b. $C_3N_3H_3$ c.$B_3N_3H_6$ d.B_3H_8
5. What is chemical equilibrium?
6. What is the state of hybridization of carbon in graphite and diamond?

7. Write the structure of functional group in following classes of organic compounds

a. Amines b. Ester

8. What is the molecular formula of 3-ethyl-2, 3-dimethylpentane?

SECTION B

9. Explain dehydrohalogenating reaction with example.

10.What is the action of 40%H_2SO_4 on acetylene in the presence of 1% $HgSO_4$?

11.Write resonance structure of CO_2.

12.Why does boron trifluoride behave as a Lewis acid?

13.Describe the importance of sodium carbonate.

14.How many electrons will be around I in the compound IF_7?

15.Explain photoelectric effect.

SECTION C

16.Explain the term percentage composition.

OR

Calculate number of moles and molecules of ammonia present in 5.6dm3of its volume.

17.Name the following elements which has electronic configuration as

a. $[He]2s^2\ 2p^6$

b. $[Ar]3d^8\ 4s^2$

c. $[Ne]3s^2\ 3p^4$

18.Explain tropospheric pollution.

19.Suggest the route for the preparation of following compounds from benzene

a.3-chloronitrobenzene

b.4-chlorotoluene

c.3-Nitrobenzene sulphonic acid

20. Which of the following species will have the largest and the smallest size?

a. Mg, Mg^{2+} ,Al ,Al^{3+}
b. Mg, Mg^{2+},Fe,Fe^{3+}

21. Explain what are n-alkanes, iso-alkanes and neo-alkanes.

22. Write a short note on anomalous properties of beryllium.

23. What is the reaction of hydrogen on the

a. Halogen b. Oxygen c. Nitrogen

24.Distinguish between homogeneous and heterogeneous catalysis.

25.Explain the variousfactors on which the rate of a chemical reaction depends.

26.Balance the following equation for the redox reaction in acidic medium by oxidation number method

$MnO_4^- + SO_3^{2-} \rightarrow Mn^+ + SO_4^{2-}$

SECTION D

Q.27 Draw the resonance structures of phenol.

Explain what is hyperconjugation.

OR

Explain electrophile and Nucleophilic reagent with a suitable example.

What are the characteristics of homologous series?

Q.28 Explain the formation of ethylene molecule on the basis of hybridation. Why sigma bond is stronger than pi bond?

OR

Explain the formation of O_2 molecule on the basis of molecular orbital theory.

Calculate the bond order in O_2 molecule.

Q.29 Explain the graphical representation for the verification of Boyle's law. Obtain a relationship between density and pressure of a gas at constant temperature.

OR

State and explain Charles' law.