



# CHEMISTRY

## BOOKS - EDUCART PUBLICATION

### SAMPLE PAPER 9

#### Section A

1. Which of the following is a liquid?

A.  $F_2$

B.  $Cl_2$

C.  $Br_2$

D.  $I_2$

**Answer:**



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2. In which of the following packing 74% space is occupied by the atoms with ABCABC packing of atoms ?

A. Body centred cubic lattice

B. Simple cubic lattice

C. Hexagonal closed lattice

D. Cubic closed lattice

**Answer:**



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**3. Which type of solids are good conductor of electricity and are malleable in nature?**

A. Ionic solids

B. Metallic solids

C. Molecular solids

D. Amorphous solids

**Answer:**



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4. Raw meat is preserved by adding a small amount of salt to it. The bacteria responsible for spoiling .....

A. it loses water due to reverse osmosis and gets destroyed

B. it gains water due to reverse osmosis and gets destroyed

C. it loses water due to osmosis and gets destroyed

D. it gains water due to osmosis and gets destroyed

**Answer:**



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5. Write the order of thermal stability of the hydrides of group 16 elements.

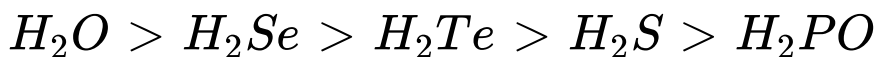
A.



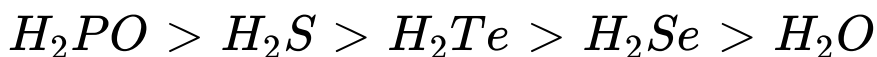
B.



C.



D.



**Answer:**



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6. Which of the following reactions would give the best yield of *t* – butyl methyl ether?

A. Tert butyl alcohol and conc  $H_2SO_4$

B. Tert. butyl chloride and  $CH_3ONa$

C. Sodium tert- butoxide and  $CH_3I$

D. Butoxide, HCl, tert butyl ether

**Answer:**



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7. Glucose cannot be classified as

A. a hexose

B. a carbohydrate

C. an aldose



D. an oligosaccharide

**Answer:**



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8. Which compounds are produced when ammonia reacts with excess of bromine ?

A.  $N_2$  and  $NBr_3$

B.  $NBr_3$  and  $HBr$

C.  $N_2$  and  $HBr$

D.  $N_2$  and  $NH_4Br$

**Answer:**



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9. In which pair most efficient packing is present?

A. bcc and simple cubic cell

B. hcp and ccp

C. bcc and fcc

D. hep and bcc

**Answer:**



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**10.** The most acidic halo substituted phenol among the given compounds is:

A. o-fluorophenol

B. o-chlorophenol

C. o-iodophenol

D. o-bromophenol

**Answer:**



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**11.** Considering the formation, breaking and strength of hydrogen bond, predict which of the following mixtures will show positive deviation from Raoult's law?

A. Benzene and acetone

B. Chloroform and benzene

C. Hydrochloric acid and water

D. Acetone and aniline

**Answer:**

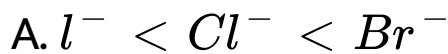


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**12.** For the following



the increasing order of nucleophilicity would be:



**Answer:**



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**13.** Which of the following does not exist?



B.  $NeF_2$

C.  $XeF_2$

D.  $XeF_6$

**Answer:**



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**14.** Among the following compounds which will be steam volatile:

A. Phenol

B. p-nitrophenol

C. o-nitrophenol

D. m-nitrophenol

**Answer:**



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**15.** Which of the following mechanism is followed in halogenation, sulphonation and Friedal craft reaction of haloarenes?



A. addition reaction of benzene

B. electrophilic substitution reaction

benzene

C. nucleophilic substitution reaction

benzene

D. elimination reaction of benzene

**Answer:**



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16.  $\alpha$  -Amino acids:

- A. are soluble in water
- B. are colour less
- C. behave as amphoteric
- D. all of these

**Answer:**



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17. For  $S_N1$  mechanism which compound has the maximum reactivity:

- A. Benzyl chloride
- B. iso-propyl chloride
- C. Chlorobenzene
- D. Ethyl chloride

**Answer:**



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18. The value of  $K_b$  depends upon the:

- A. nature of the solvent
- B. nature of the solute
- C. nature of the solution
- D. Both (b) and (c)

**Answer:**



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19. Among the 15th group elements, as one goes from nitrogen to bismuth, the pentavalency becomes less pronounced and trivalency becomes more pronounced due to

- A. Non metallic character
- B. Inert pair effect
- C. High electronegativity
- D. Large ionization energy

**Answer:**



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20. Invert sugar is:

- A. A type of cane sugar
- B. An optically inactive form of sugar
- C. mixture of glucose and galactose
- D. mixture of glucose and fructose in equimolar quantities

**Answer:**



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21. Ionic radii (in Å...) of  $As^{3+}$ ,  $Sb^{3+}$  and  $Bi^{3+}$  follow the order

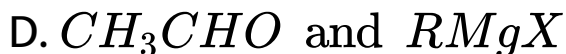
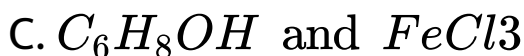
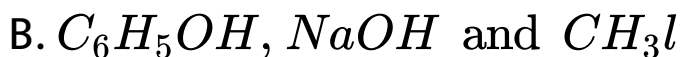


**Answer:**



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22. Which of the following pairs will produce anisole?



**Answer:**

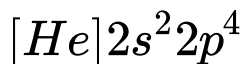


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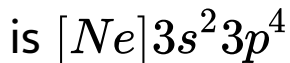


23. Which of the following statements regarding group 16 elements is not true?

A. The electronic configuration of Oxygen is

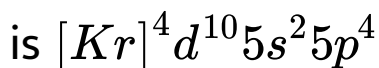


B. The electronic configuration of Sulphur



C. The atomic radii of the elements of group 16 are larger than those of the corresponding elements of group 15

D. The electronic configuration of Tellurium



**Answer:**



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**24.** Which is the least basic:



D.  $Nl_3$

**Answer:**



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## Section B

1. The osmotic pressure M/10 solution of cane sugar (Molar mass  $342 \text{ g mol}^{-1}$ ) at  $300 \text{ K}$  equal to  $[R = 0.082 \text{ L atm } k^{-1} \text{ mol}^{-1}]$ :

A. 2.00 atm

B. 2.24 atm

C. 2.46 atm

D. 2.50 atm

**Answer:**



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**2. Acetone and Ethyl alcohol belong to which of the following types:**

A. Ideal solution

B. Positive deviation from Raoult's law

C. Negative deviation from Raoult's law

D. Azeotropic mixture

**Answer:**



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**3.**  $\alpha - D( + ) -$  glucose and  $\beta - D( + ) -$  glucose are:

A. enantiomers

B. conformers

C. anomers

D. epimers

**Answer:**



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**4.** Which of the following does not exist as an octatomic solid?

A. Sulphur

B. Tellurium

C. Selenium

D. Oxygen

**Answer:**



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**5. Group 17 elements are called Halogens ?**

A. they give salts when they react with metals.

B. Form acids

C. Form basic hydrides

D. Gp 17 give reactive compounds

**Answer:**



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6. Hot conc.  $H_2SO_4$  acts as moderately strong oxidising agent. It oxidises both metals and non-metals. Which of the following elements is oxidised by conc.  $H_2SO_4$  into two gaseous products ?

A. Cu

B. S

C. C

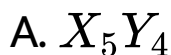
D. Zn

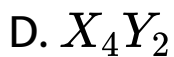
**Answer:**



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7. A crystal is made of particles X and Y. X form fcc packing and Y occupies all the octahedral voids. If all the particles along one body diagonal are removed then the formula of the crystal would be :





**Answer:**



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**8. Peptides on hydrolysis give:**

A. Amines

B.  $\alpha$  – amino acids

C. Ammonia

D.  $\beta$  – amino acids

**Answer:**



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9. Which of the following will result in the oxidation of halide ion?

A.  $Br_2$  added to aqueous NaF

B.  $F_2$  added to aqueous HCl

C.  $I_2$  added to aqueous HI

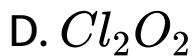
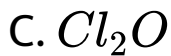
D.  $Cl_2$  passed through aqueous NaCl

**Answer:**



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**10. Least stable oxide of chlorine is:**



**Answer:**



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11. For  $SN_1$  mechanism which compound has the maximum reactivity:

- A. Benzyl chloride
- B. iso-propyl chloride
- C. Chlorobenzene
- D. Ethyl chloride

**Answer:**



12. The edge length of a cube is 400 pm .its body diagonal would be

A. 500 pm

B. 693 pm

C. 600 pm

D. 700 pm

**Answer:**



**13.** The oxides that contain less oxygen atom than permitted:

A. Peroxide

B. Dioxide

C. Sub oxide

D. Super-oxide

**Answer:**



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14. The metal ions impart colour of the flame due to:

A. Frenkel defect

B. Metal excess defect

C. metal deficiency defect

D. Schottky defect

**Answer:**



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15. Ionic solids are made by what kind of arrangement of the cations and anions?

A. 3-D

B. 2-D

C. Regular arrangement

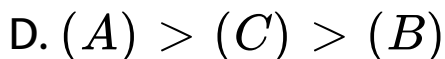
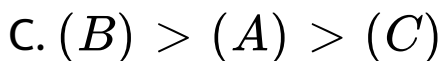
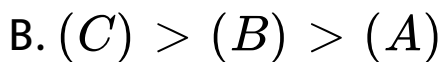
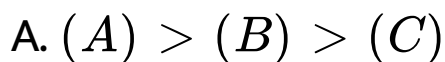
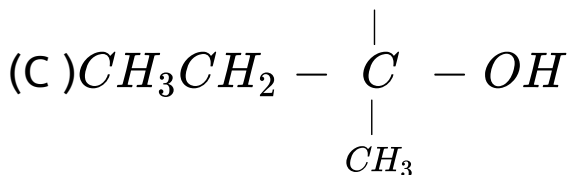
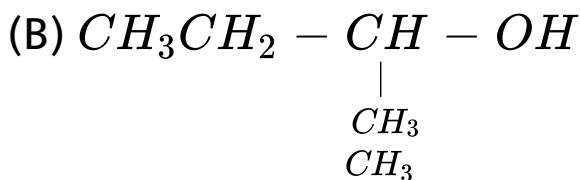
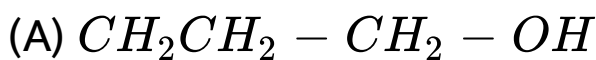
D. Layered structure

**Answer:**



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16. The order of reactivity of following alcohols with halogen acids is .....



**Answer:**



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**17. Assertion (A):** In case of haloarenes, electrophilic substitution reactions occur slowly and under drastic conditions.

**Reason (R):** Haloarenes are activated as compared to benzene.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer:**



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**18. Assertion :-** (a) the total number of atoms present in a simple cubic unit cell is one .

**Reason :-** (R ) simple cubic cell has atoms at its

corners , each of which is shared between eight adjacent adjacent unit cells.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer:**



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**19.** Statement-1 : Sulphur exhibits paramagnetic behaviour in vapour state.

Statement-2 : In vapour state sulphur partly exists as  $S_2$  molecule which has two unpaired electrons in antibonding  $\pi^*$  orbitals.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer:**



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**20.** Assertion (A): 'Soft drinks are sealed under high pressure to increase the solubility of  $CO_2$ .

Reason (R): Raoult's law states that, the



vapour pressure of a non volatile component  
in a given solution is given by  $P_i = x_i p_i^0$

A. Both A and R are true and R is the  
correct explanation of A

B. Both A and R are true but R is not the  
correct explanation of A

C. A is true but R is false

D. A is false but R is true

**Answer:**



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**21.** Assertion (A): The DNA has two complementary strands.

Reason (R): Adenine always pairs with thymine and guanine with cytosine.

A. Both A and R are true and R is the correct explanation of A

B. Both A and R are true but R is not the correct explanation of A

C. A is true but R is false

D. A is false but Ris true

**Answer:**



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## Section C

1. Which of the following analogies is correct:

A. Racimisation : SN2 :: Inversion of configuration : SN1

B. Chiral molecule : Optically active SN1:

Substitution nucleophilic unimolecular

C. Alcoholic KOH : Substitution reaction ::

Aqueous KOH: Elimination reaction

D. Stereoisomers : same geometry in 3D

space :: isomers : Different molecular for

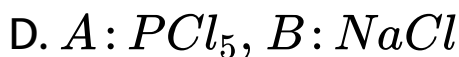
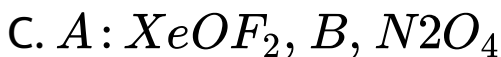
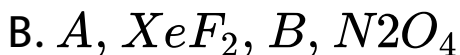
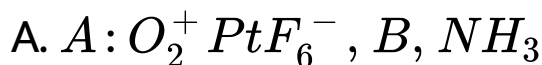
mula

**Answer:**



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2. Complete the following analogy: In the preparation of compounds of Xe, Bartlett had taken it as a base compound : A : Compound of N which acts as a lewis base



**Answer:**

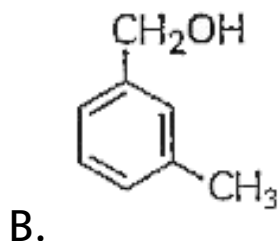
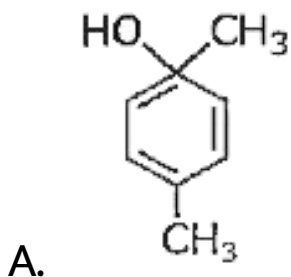


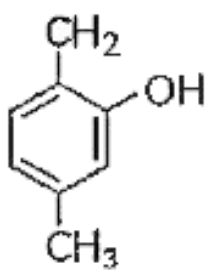
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3. Read the passage given below and answer the following questions 53-55. The electrochemical reduction of benzaldehyde and p-tolualdehyde has been achieved by diphenyl ditelluride and diphenyl diselenide as catalyst using undivided cell containing graphite (cathode) and aluminium (anode) electrodes. The products of electrochemical reduction are benzyl alcohol and p-methyl benzyl alcohol. They are characterised by by melting and boiling points. The yields of

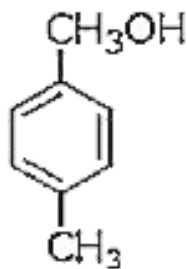
alcohol depends upon the kind of dichalcogenides compounds. The reduction is carried out in atmosphere of nitrogen. p-methyl benzaldehyde on reduction gives p-methyl benzyl alcohol.

Correct formula of p-methyl benzyl alcohol is:





C.



D.

**Answer:**



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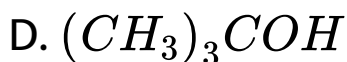
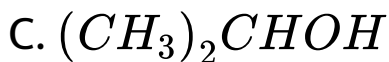
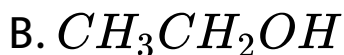
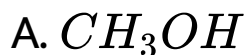
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methyl benzyl alcohol.

Which alcohol will form turbidity (milky) with Lucas reagent immediately?



**Answer:**

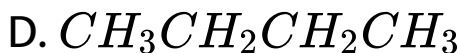
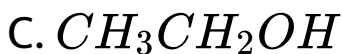
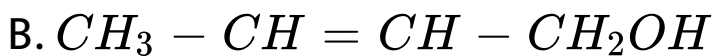
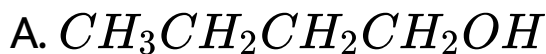
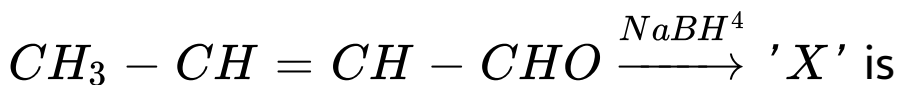


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dichalcogenides compounds. The reduction is carried out in atmosphere of nitrogen. p-methyl benzaldehyde on reduction gives p-methyl benzyl alcohol.

Identify X in the following reaction



**Answer:**



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