

**Gurudas College**  
**Internal Examination, 2020**  
**Chemistry (General)**  
**Semester - II**  
**Paper - CC/GE-2 F.M. - 50**  
**Subject - CEMG Time - 12:30 - 2:00 PM**

Each question carries Equal marks

**Group - A (Theory)**

Answer any TEN questions

1. Silver crystallizes in cubic lattice. The density is 10.7 g/cc. If unit cell length is 0.406 nm, suggest the unit cell type

(a) Face center cubic lattice (b) Body center cubic lattice (c) Simple cubic lattice (d) None of the these

2. The percentage of void space for face center cubic lattice is

(a) 26 % (b) 50 % (c) 40 % (d) 10 %

3. Calculate degrees of freedom (F) for the following system:



(a) F = 1 (b) F = 2 (c) F = 0 (d) F = 3

4. Which of the following hydrocarbons have acidic hydrogens?

(a) 1-butene (b) 1-butyne (c) 2-butene (d) 2-butyne

5. Which of the following compound does not react with ammoniacal AgNO<sub>3</sub> solution?

(a) Acetylene (b) 1-butyne (c) Propyne (d) 2-butyne

6. The chlorination of methane to give CCl<sub>4</sub> is an example of

(a) an electrophilic addition (b) a free radical substitution (c) a nucleophilic substitution (d) an electrophilic substitution

7. Markownikov's addition of HBr is not applicable to

(a) Propene (b) 1-butene (c) 2-butene (d) 1-pentene

8. Which of the following compounds will give only acetaldehyde on ozonolysis?

(a) 2-butene (b) 1-butene (c) Acetylene (d) Ethylene

9. Which one is a strong oxidizing agent?

(a) Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> (b) AgNO<sub>3</sub> (c) K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> (d) KCl

10. In Nernst equation  $E^0$  stands for  
(a) e.m.f. of the cell (b) Faraday (c) Free energy change (d) e.m.f. of the cell at standard condition
11. A system which can not transfer matter but can transfer energy to and from the surroundings is known as  
(a) isolated system (b) closed system (c) open system (d) None of the these
12.  $\Delta U = Q + W$  is the mathematical form of  
(a) 1<sup>st</sup> law of thermodynamics (b) 3<sup>rd</sup> law of thermodynamics (c) 2<sup>nd</sup> law of thermodynamics (d) None of the these
13. Criterion of spontaneity of a chemical process is  
(a)  $dG_{P,T} < 0$  (b)  $dG_{P,T} > 0$  (c)  $dG_{P,T} = 0$  (d) None of the these
14. Calculate the mean and standard deviation for the following set of analytical results: 15.67, 15.69, 16.03  
(a) 15.20, 0.098 (b) 15.30, 0.322 (c) 15.80, 0.202 (d) 15.50, 0.302
15. Determine the significant figures in the following digits: 800.0, 0.007, 70.9, 0.612  
(a) 4, 1, 3, 3 (b) 3, 1, 2, 2 (c) 4, 4, 3, 3 (d) 3, 4, 3, 3

**Group - B (Practical)**

Answer any **SIX** questions

1. The apparatus 'Stalagmometer' is used to measure  
(a) surface tension (b) viscosity coefficient (c) solubility product (d) None of the these
2. 'Poise' is the unit of  
(a) solubility product (b) viscosity coefficient (c) pH of a solution (d) surface tension
3. '74.6' is the equivalent weight of  
(a) oxalic acid (b) NaOH (c) KCl (d)  $\text{NaNO}_3$
4. 'Specific Gravity bottle' is used to determine  
(a) density (b) weight (c) volume (d) pressure
5. Surface tension is a property of  
(a) liquid (b) solid (c) gas (d) None of these
6. Viscosity is a property of  
(a) fluid (b) solid (c) metal (d) non-metal

7. KCl is a

(a) salt (b) acid (c) base (d) alkali

8. 'Viscometer' is used to measure

(a) surface tension (b) solubility product (c) density of a solution (d) viscosity coefficient

**Group - C (Internal Assessment)**

Answer any ***FOUR*** questions

1. At 25 °C the vapour pressure of water is 23.55 mm. What would be the vapour pressure of a solution containing 6 g of urea (Mol. wt. 60) in 100 g of water at the same temperature?

(a) 23.13 mm (b) 26.46 mm (c) 20.12 (d) 30.49 mm

2. The carbon atoms involved in the double bond of an alkene are

(a)  $sp^2$  hybridised (b)  $sp^3$  hybridised (c)  $sp$  hybridised (d) None of the these

3. Addition of two moles of HCl to propene gives

(a) 1,3-dichloropropane (b) 1,2-dichloropropane (c) 2,2-dichloropropane (d) None of the these

4. Negative electrodes in any electrochemical reaction are called

(a) Electrolytes (b) Insulators (c) Cathodes (d) Anodes

5. The unit of Gibb's free energy of a reaction in SI unit is

(a)  $\text{kcal mol}^{-1}$  (b)  $\text{cal mol}^{-1}$  (c)  $\text{kJ mol}^{-1}$  (d)  $\text{Joule mol}^{-1}$

6. Convert Binary No. 1101 into Decimal system

(a) 10 (b) 21 (c) 13 (d) 15