291/22 VCD/ F.Y.B.Sc. SEM I CHEMISTRY-II 2.5 HRS 75 marks 330

1) All the questions are compulsory.
2) All questions carry equal marks.
3) Draw neat, labelled diagrams wherever necessary.

Q.1 A. Multiple choice questions (Attempt any nine) 09

1. Concentration of any gas expressed in _____?
   a) kilopascal b) kilogram c) kilometre d) kilojoules
2. As the temperature of a reaction is _____ the rate of the reaction _____?
   a) increase, increase b) decrease, increase c) increase, decrease d) decrease, decrease
3. $CH_3COOCH_3 + H_2O$ -----> $CH_3COOH + CH_3OH$.
   The hydrolysis of Methyl acetate is an example of _____?
   a) first order reaction b) second order reaction
   c) zero order reaction d) pseudo first order reaction
4. For second order reaction half-time is _____ to the initial concentration.
   a) directly proportional b) not proportional
   c) inversely proportional d) depends on condition
5. Surface tension of a liquid _____ with increase in temperature.
   a) increase b) decrease c) remains same d) no regular pattern in followed
6. Following pair does not show diagonal relationship _____?
   a) Li-Mg b) Be-Al c) B-Si d) Li- B
7. Anomalous behaviour of second period elements arises because of_____?
   a) They have big size b) Availability of the d-orbitals.
   c) High polarising power of cations d) High polarisability of anions
8. Diamond has _____ structure.
   a) three-dimensional b) one-dimensional c) two-dimensional d) four-dimensional
9. The _____ concentration of CO_2 can lead to _____ in the earth's temperature.
   a) increase, increase b) decrease, increase c) increase, decrease d) decrease, decrease
10. A solid wedge or a heavy line represents a bond projecting _____ the plane of the paper.
    a) above b) below c) on the right d) on the left
11. Tartaric acids have _____ stereoisomers.
    a) two b) four c) five d) one
12. In the Fischer Projection formula, the more oxidized group is placed at the _____of the vertical line.
    a) top b) bottom c) right d) left
13. The number of stereoisomeric forms is given by the formula _____?
    a) 5^n b) 6^n c) 1^n d) 2^n

B. Match the pairs. 03

a) Sodium Hydroxide	a) Used in LCDs
b) Nematic liquid crystal	b) Non-superimposable
c) Enantiomers are stereoisomers	c) Caustic soda

C. Write true or false. 03

a) The resistance to flow is called viscosity.
b) The energy trapping phenomenon by infrared active molecules or gases in the atmosphere is known as greenhouse effect.
c) 'L' indicates Dextro-rotatory and 'D' indicates Laevo-rotatory.

Q.2 Attempt any four: 20

A. A first order reaction is 25% complete in 30 minutes. Calculate the (i) specific reaction rate (ii) half time.
B. Write the difference between order and molecularity of reaction?
C. Drive the integrated rate equation for a reaction of second order?
D. What are the methods of determining order of reaction? Explain any two methods of determining order of reaction?
E. Write short notes on: - (i) surface tension (ii) viscosity (iii) refractive index (iv) molar refractivity (v) specific refractivity.
F. What is liquid crystal? Write down the classification of liquid crystal and application of liquid crystal?

Q.3 Attempt any four: 20

A. Write a note on electronegativity of main group elements and explain any three factors affecting it.
B. Explain diagonal relationship in detail between Lithium and Magnesium.
C. Write a note on anomalous behaviour of Nitrogen.
D. Give a method of preparation; write down any two properties and any two uses of Sodium bicarbonate.
E. Explain the greenhouse effect with sources of emission of CO_2.
F. Write a note on photochemical smog.

Q.4 Attempt any four: 20

A. What is meant by the Projection formula? Explain Fischer Projection formula.
B. Write a short note on Newman Projection formula.
C. Draw Fischer Projection formula and Newman Projection formula of Erythro and Threo tartaric acid.
D. What do you mean by Geometrical isomerism and Optical isomerism? Explain the terms with one example for each.
E. Write the difference between Enantiomers and Diastereomers
F. Define the following:- (i) Chirality (ii) Resolution of Racemic mixture (iii) Racemic mixture (iv) Meso form (v) Enantiomers