

B.Sc. (Part-I) (Semester-II) (CBCS)
Examination -2023
CHEMISTRY (Paper-III)
DSC-3B: Physical Chemistry
Sub. Code : 72844

Instructions:

1. Attempt Questions are compulsory.
2. Figures to the write indicates full marks.
3. Draw net labelled diagrams whenever necessary.
4. Use of Scientific calculator is allowed.

Day and Date:

Time:

Total Marks: 50

Que.1) Select the Correct alternative from the following.

(10 marks)

- 1) Sink representsreservoir.
 - a) Hot
 - b) Cold
 - c) Sink
 - d) All of these
- 2) Efficiency of heat engine is always
 - a) greater than one
 - b) less than one
 - c) equal to one
 - d) all of these
- 3) The rate of reaction depends on
 - a) Temperature
 - b) Pressure
 - c) Concentration
 - d) All of these
- 4) Bond energy is also known as bond energy.
 - a) dissociation
 - b) association
 - c) formation
 - d) None of these
- 5) The equation representing the variation of heat change of reaction with temperature are known as.....equation.
 - a) Boltzmann
 - b) Kirchhoffs
 - c) Graphic
 - d) Exothermic

6) Chemical equilibria are..... in nature.

- a) dynamic
- b) gaseous
- c) liquid
- d) solid

7) For reaction $A + B \leftrightarrow C$ the expression for equilibrium constant is

- a) $[C] / [A][B]^2$
- b) $[A][B] / [C]$
- c) $[C] / [A][B]$
- d) $[A][B]^2 / [C]$

8) $V_c = \dots$

- a) 5b
- b) 4b
- c) b
- d) 3b

9) Efficiency $\epsilon = \frac{W}{q} = \dots$

- a) $T_2 - T_1 / T_2$
- b) $T_1 - T_2 / T_1$
- c) $T_2 - T_1 / T_0$
- d) $T_0 - T_1 / T_2$

10) The reaction between $K_2S_2O_8$ and KI is an example of reaction.

- a) termolecular
- b) unimolecular
- c) pseudo
- d) bimolecular

Que 2) Attempt any two of the following.

(20 Marks)

- 1) Derive the relation between critical constant and Constant of Van der Waal's equation.
- 2) what are pseudo-unimolecular reactions? Explain with suitable examples.
- 3) What is bimolecular reaction & Derive the expression For unequal concentration.

Que 3) Attempt any four of the following.

(20 Marks)

- 1) Write a precise note on Carnot cycle.
- 2) Max-well distribution law.
- 3) half-life period of first order reaction.
- 4) Graphical confirmation of second order reaction.
- 5) Derivation of real gases from ideal behavior.
- 6) Pseudo-unimolecular Reaction.