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SUBJECT CODE NO: - Y-2007
FACULTY OF SCIENCE AND TECHNOLOGY
B.Sc. F.Y Sem. II
Examination March / April - 2023
Chemistry Paper-IV (Physical Chemistry)

[Time:1.30 Hours]   **[Max. Marks:50]**
Please check whether you have got the right question paper.
N. B   1) Attempt all questions
                       2) Illustrate your answer with suitable diagram

Q1   Derive Vander Waal's equation of state. Deduce Boyle's law and Avogadro's law   20

OR

Differentiate between crystalline and amorphous solids. Derive Bragg's equation

Q2   Derive the rate equation for zero order reaction. Explain types of catalysis with suitable   20
example.

OR

Write short notes on any four
   a) For the following equation. Calculate the slope and intercept of lines
       i) $5x+2y=8$
       ii) $7x-3y+5=0$

   b) Using logarithm solve
       i) $352 \div 132$
       ii) 721×128

   c) Distinguish between liquid & gases
   d) Nematic and cholestryl liquid crystal
   e) Optical properties of colloids
   f) Concept of Activation energy

Q3   Multiple choice questions   10
   1) PV= -------- is the kinetic gas equation.
       a) $\frac{1}{2}mv^2$ b) $\frac{1}{3}mnv^2$ c) $\frac{1}{3}mv$ d) $\frac{1}{4}mn$

   2) $n_1 = n_2$ represents ----- hypothesis
       a) Debroglie's   b) Avogadro's   c) both a & b   d) none of these

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3) $K = \frac{2.303}{t} \log \frac{a}{(a-x)}$ is the rate equation for -----order of reaction.
   a) Zero   b) first   c) second   d) Pseudo

4) The rate of reaction increases with the ----of Pressure.
   a) Increase   b) decrease   c) both a & b   d) None of these

5) The intermediate state between solid and liquid is --------
   a) Solid   b) liquid   c) gases   d) liquid crystal

6) Gelatin is an example of -------------
   a) Gel   b) Emulsion   c) sol   d) none of these

7) The scattering of light is due to ---------effect.
   a) Brownian   b) Tyndall   c) Compton   d) none of these

8) ----are compressible
   a) Solid   b) gases   c) both a & b   d) none of these

9) $\log 400 =$---------------
   a) 1.00   b) 2.00   c) 3.00   d) 4.00

10) Slope of straight line is ----------
   a) $y = x + mc$ b) $y = mx$ c) $y = \frac{mx}{c}$ d) $y = mx + c$

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