PARVATIBAI CHOWGULE COLLEGE OF ARTS & SCIENCE(Higher Secondary Section)Margao-Goa.

MID TERM EXAMINATION AUGUST 2012 **MARKS : 20**
CLASS : XII SCIENCE **SUBJECT : CHEMISTRY**
DATE & DAY : 08.08.2012 WEDNESDAY **TIME : 11.00 am to 12.00pm**

INSTRUCTIONS:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. The use of calculators is not permitted, however logarithmic tables will be provided on request.
4. Given $N_A = 6.022 \times 10^{23}$atoms/mol & $R = 8.314 JK^{-1}mol^{-1}$

Q.1.A.Addition of excess of potassium to potassium chloride crystal makes it appear violet. (2)
Name and explain the type of non- stoichiometric defect shown by the above crystal. Draw a neat labeled diagram for the same.

B. Calculate the atomic mass of an element that crystallizes with a face centered cubic lattice having density $5.209 gcm^{-3}$ and edge length of the side of the unit cell as 0.3×10^{-8}cm. (2)

C. Name the following. (1)
i) Compound added to soaps to impart antiseptic properties to it.
ii) Cationic detergent used in hair conditioners.

Q.2.A. Derive the integrated rate equation for the rate constant of a first order reaction and show that the time required for the completion of the first order reaction is independent of the initial concentration. (2)

B. The value of the rate constant for the decomposition of Nitrogen Pentoxide (2)
$N_2O_5(g) \rightarrow N_2O_4(g) + ½\ 0_2(g)$ is $3.46 \times 1O^{-5}s^{-1}$ at 25°C and $4.87 \times 1O^{-3}s^{-1}$ at 65°C. Calculate the energy of activation for the reaction.

C. Draw the Maxwell- Boltzmann distribution curve showing temperature dependence on the rate of reaction. (1)

Q.3.A. Answer the following:- (3)
i) Draw a neat labeled diagram to show the extraction of Aluminum in an electrolytic cell.
ii) Describe a method for the refining of Nickel.
iii) Write equations to show how Silver can be purified by leaching.

B. Write an example and function of each of the following:- (2)
i) Tranquilizers
ii) Broad spectrum antibiotics

Q.4.A. Name and write the mechanism to depict the alkaline hydrolysis of methyl chloride. (2)
Is it accompanied by inversion or retention of configuration?

B. Write chemical equations for the following conversions:- (2)
i) 1- Chlorobutane to n- Octane
ii) But-1-ene to But-2-ene

C. Explain Sandmeyer's reaction with an example. (1)

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