



CHEMISTRY

BOOKS - KALYANI CHEMISTRY (ENGLISH)

SELF ASSESSMENT PAPER -10

Questions

1. The boiling point of benzene is 353.23 K.

When 1.80 g of a non-volatile solute was

dissolved in 90 g of benzene, the boiling point is raised to 354.11 K. Calculate the molar mass of the solute. K_b for benzene is $2.53 \text{ K kg mol}^{-1}$



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2. The rate of a reaction quadruples when the temperature changes from 293 K to 313 K. Calculate the energy of activation of the reaction assuming that it does not change with temperature.



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3. Time required to decompose SO_2Cl_2 to half of its initial amount is 60 minutes. If the decomposition is a first order reaction, calculate the rate constant of the reaction.



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4. In a first order reaction, 10% of the reactant is consumed in 25 minutes. Calculate : (i) The

half life of the reaction. (ii) The time required for completing 17% of the reaction



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5. Vapour pressure of water at 293 K is 17.535 mm Hg. Calculate the vapour pressure of water at 293 K when 25 g of glucose is dissolved in 450 g of water.



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6. Determine the amount of $CaCl_2$ ($i = 2.47$) dissolved in 2.5 litre of water such that its osmotic pressure is 0.75 atm at 27°C .



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7. Why do noble gases have comparatively large atomic sizes?



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8. Why pK_a of $F - CH_2 - COOH$ is lower than that of $Cl - CH_2 - COOH$?



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