U.G. 6th Semester Examination - 2022

CHEMISTRY

[PROGRAMME]

Skill Enhancement Course (SEC)

Course Code : CHEM(G)SEC-T-2

(IT Skills for Chemists)

Full Marks : 40 Time : 2 Hours

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

1. Answer any **five** questions: 2×5=10

   a) What do you mean by bits and bytes?

   b) State the difference between accuracy and precision.

   c) Write the difference between constants and variables.

   d) What are ASCII characters?

   e) State Simpson's rule in numerical integration.

   f) What is Debugging process? Distinguish between Debug and Virus.

2. Answer any **two** questions: 5×2=10

   a) What are the types of errors in the measurements? Explain with suitable examples. 5

   b) Calculate pH of 10^{-7} M benzoic acid (given, of benzoic acid 6.5×10^{-5}). 5

   c) Using the Newton-Raphson method determine the volume of one mole of oxygen gas at pressure and temperature of . For oxygen a=1.360 $lit^2.atm.mol^{-1}$ and b=0.0003183 lit. Take R=0.08206 $lit.atm.mol^{-1}K^{-1}$ (Apply these parameters to the Van der Waals equation). 5

3. Answer any **two** questions: 10×2= 20

   a) Express the Van der Waals equation of state as a cubic equation of V. State and explain the Trapezoidal rule. 5+5=10

   b) Briefly explain Least Square Method. Establish the equation of the Regression line. 5+5=10

   c) With suitable examples briefly explain the principle of Potentiodynamic titration. Briefly show the first and second derivatives in a potentiometric titration. Explain briefly how systematic and random error can be minimized?

   $2+3+2\frac{1}{2}+2\frac{1}{2}=10$

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