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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science & Engineering
Mid Examination, Summer 2025
Course Code: CSE226, Course Title: Numerical Methods
Level: 2, Term: 3, Batch: 65

Time: 01:30 Hrs **Marks: 25**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1. a) **Demonstrate** the conditions of significant digits with example. **[2]** **CO1**

b) **Explain** E_R and E_P after finding the sum of the following expression, if all the number are correct up to 4 Significant digits. **[3]**

$$\sqrt{82}-\sqrt{91}+\sqrt{101}$$

2. **Apply** error analysis to find out the best method between (i) False Position and (ii) Newton-Raphson, after finding the real root up to 4 significant digits are correct of the following equation, which belong to the interval [0.5, 1.5]. [N.B: Exact values of the root is 1.22263998]; **[10]** **CO2**

$$x^3+2e^{-2x}\sin\left(x^2\right)-2=0$$

3. a) The historical population data for 5 specific years in Bangladesh are given. **[5]** **CO3**

Year	1980	1990	2000	2010	2020
Population (Crore)	8.393	10.715	12.919	14.839	16.742

Determine the population in 1987 in Bangladesh.

b) Profit data for an industry have been given in relation to the number of units of its products. **[5]**

Units	1	2	3	5
Profit (Tk in Lakh)	3	5	15	83

For the products of x unit, **Determine** the profit function.