

**COMSATS University, Islamabad**

**Islamabad Campus**

**Department of Computer Science**

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| **Assignment No. 4** | |
| **Course code and Title:** CSC475: Numerical Computing | |
| **Instructor:** Sara Ali |  |
| **Total Marks: -- 30** | **CLO-4, CLO 5** |
| **Instructions:**   1. Submit your work in hand written form. 2. Try to consolidate your concepts and ideas from these questions. 3. **Try to make solution by yourself and protect your work from other students. If I found the solution files of some students are same, then I will reward zero marks to all those students.** | |

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| **Question # 1** |
| A slider in a machine moves along a fixed straight rod. Its distance *x*(*m*) along the rod are given in the following table for various values of the time *t* (seconds).    Find the velocity and acceleration of the slider at time *t* = 6 sec. |
| **Question # 2** |
| Evaluate   1. by using trapezoidal rule, taking *n* = 6, correct to five significant figures. 2. by using Simpson’s 1/3 rule, taking *n* = 8. 3. by using Simpson’s 3/8 rule and taking seven ordinates. |
| **Question No: 3(CLO-6)** |  |
| Use the Runge-Kutta method of order four with h = 0.1 to obtain an approximation to y (0.4) for the solution of with the initial condition y = 1 at *x* = 0.  Note: |  |