

**II BE Computer Engineering**  
**Class Test-II October 2021**  
**ACR3C1 Applied Mathematics-III**

**Time-70 Mins.**

**Maximum Marks [20]**

**Note-Attempt all the questions.**

Q.1 Perform six iterations of Jacobi's method to solve- [5]

$$\begin{aligned}4x - 2y - 5z &= 3; \\2x + 6y - z &= -11; \\7x + 3y - 2z &= 4.\end{aligned}$$

Q.2 Using ***R – K*** method of fourth order to find ***y (2.2)*** in two steps from- [5]

$$\frac{dy}{dx} = -\frac{ye^{xy}}{xe^{xy} + 2y}; y(1.5) = 2$$

Q.3 A simply supported beam carries a concentrated load ***P (lb)*** at its mid point. Corresponding to various values of ***P***, the maximum deflection ***Y (in)*** is measured. The data are given below-

<b><i>P</i></b>	<b>100</b>	<b>120</b>	<b>140</b>	<b>160</b>	<b>180</b>
<b><i>Y</i></b>	<b>0.45</b>	<b>0.55</b>	<b>0.60</b>	<b>0.70</b>	<b>0.80</b>

Find **(i)** the deflection for the load of **148 (lb)** and **(ii)** the rate of change of deflection at **173 (lb)** . [5]

Q.4 A body is in the form of a solid of revolution. The diameters ***D*** in ***cms*** of its sections at distances ***x cms*** from one end are given below. Estimate the volume of the solid using Simpson's **1/3** and **3/8** rules. [5]

<b><i>x</i></b>	<b>0</b>	<b>2.5</b>	<b>5.0</b>	<b>7.5</b>	<b>10.0</b>	<b>12.5</b>	<b>15.0</b>
<b><i>D</i></b>	<b>5</b>	<b>5.5</b>	<b>6.0</b>	<b>6.75</b>	<b>6.25</b>	<b>5.5</b>	<b>4.0</b>

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