

## ANNEX B

### SRJC FM JC2 Prelim Examination Paper 1

QN	Topic	Answers
1	Recurrence Sequences	(i) $U_n = 0.6U_{n-1} + 150$ , $U_0 = 250$ (ii) $a = -125$ , $b = 375$
2	Numerical Methods I	(iii) any value below 0.315
3	Polar Coordinates	(ii) $k = 1/32$
4	Linear Spaces	
5	Mathematical Induction	(ii) $A = -2a_0 + b_0$ , $B = a_{k-1} - 2a_k$ , $C = a_k$
6	First Order DE	(i) $-\frac{3}{x} + \frac{1}{1-x} - \frac{1}{1+x}$
7	Numerical Methods II	(i) 3.9808 (ii) 3.9252
8	Conics	(ii) parabola (iv) $2y\sqrt{1-a^2} = (a+1)x - 8$ , $2y\sqrt{1-a^2} = (1-a)x - 8$
9	Further Application of Integration	(i) $h(t_n) = 4(t_n^2 - 2\ln t_n)$ (ii) $\alpha = 1.228$ (iii) $A(1,0)$ and $B\left(\frac{1}{4}, 4\right)$ , $P(1.097, 0.912)$ (iv) 4.20 (v) 16.2
10	Linear Spaces	(i) $x_1 = 2a$ , $x_2 = b$ (ii) $a \pm \sqrt{a^2 + b}$ , $\begin{pmatrix} a + \sqrt{a^2 + b} \\ 1 \end{pmatrix}$ , $\begin{pmatrix} a - \sqrt{a^2 + b} \\ 1 \end{pmatrix}$ (iii) $\mathbf{D} = \begin{pmatrix} a + \sqrt{a^2 + b} & 0 \\ 0 & a - \sqrt{a^2 + b} \end{pmatrix}$ , $\mathbf{P} = \begin{pmatrix} a + \sqrt{a^2 + b} & a - \sqrt{a^2 + b} \\ 1 & 1 \end{pmatrix}$ (iv) $u_n = \frac{a-1}{4}(3a)^n + \frac{3a-1}{4}(-a)^n$
11	Numerical Methods II	(i) $x = 2^{t+1}$

