Sri Lanka Institute of Information Technology

Bachelor of Science in Information Technology

Mid Term Examination
Year 1, Semester 1, 2013
Tuesday, 19th March 2013

Mathematics for Information Technology (N109)

Duration: 1 Hour
(Time 01.00 p.m. – 02.00 p.m.)

Instructions to Candidates

- This paper contains **Four (4)** Questions on **ONE (1)** Page.
- Answer **ALL** questions **on the WORKBOOK provided**.
- The paper is worth 30 marks.

1. Specify the domain of the function $y = \dfrac{2-x}{x^2-4x-21}$ [02 marks]

2. Find the rate of change of the function $f(x) = \dfrac{(2x-1)(x+3)}{(x+1)}$ with respect to $x = 2$. [03 marks]

3. Determine where the given function $f(x) = 2x^3 - 3x^2 - 36x + 14$ is increasing and decreasing. Find the relative extrema and inflection points if any and sketch the graph of the function. [10 marks]

4. Solve the following equations for x. [15 marks]

a. $\sqrt{x} + \sqrt{x+7} = \sqrt{2\sqrt{x^2+7x)}+5}$

b. $\dfrac{2}{x+2} = \dfrac{-x}{x^2+5x+6}$

c. $x = \sqrt{x+2}$

d. $\dfrac{x-2}{3} + 1 = \dfrac{2x}{7}$

e. $\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{x^2}+3}+3}+3}+3} = 2$

*** End of Paper ***