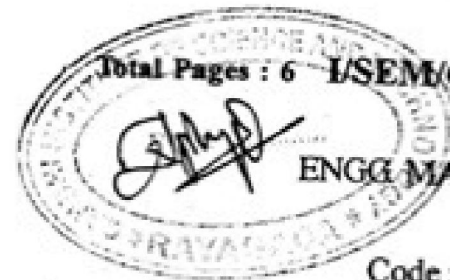


(6)

(c) If $x + \frac{1}{x} = 2 \cos \theta$, show that

$$x^n + \frac{1}{x^n} = 2 \cos n \theta$$

7



Total Pages : 6 I/SEM/ Common/2013 (W) (New)

ENGG MATHEMATICS-I

Code : BST-103

Full Marks : 70

Time : 3 hours

Answer any five questions

The figures in the right-hand margin indicate marks

1. (a) Express $\frac{(1+i)^2}{3-i}$ in form of $a + ib$ 2

(b) Find the square root of $-5 + 12i$. 5

(c) Find the scalar and vector projection of \vec{a} on \vec{b} if

$$\vec{a} = \hat{i} - \hat{j} - \hat{k} \text{ and } \vec{b} = 3\hat{i} + \hat{j} + 3\hat{k} \quad 7$$