



Vivekananda College of Engineering & Technology

[Sponsored by Vivekananda Vidyavardhaka Sangha, Puttur ®]

Affiliated to Visvesvaraya Technological University

Approved by AICTE New Delhi & Govt of Karnataka

CRM08

Rev 1.0

FY-MAT

14/08/2015

INTERNAL ASSESSMENT TEST - 1

Dept: FY	Sem/div:I/A/B/C/D/E/F/G/H	Sub:Engineering Mathematics I	S Code:15MAT11
Date:20/8/2015	Time:9.30am -11.00am	Max Marks: 40	Elective: N
Note: Answer any 2 full questions.			

QN	Questions	Bloom's Level	Marks
1 a	If $y = a \cos(\log x) + b \sin(\log x)$, then show that $x^2 y_{n+2} + (2n+1)xy_{n+1} + (n^2+1)y_n = 0$	L3	7
b	Find n^{th} derivative of the following (i) $\log(9x^2+6x+1)$ (ii) $e^{2x} \cos^3 x$	L2	6
c	Show that the curves $r = \frac{a}{(1+\cos\theta)}$ and $r = \frac{b}{(1-\cos\theta)}$ intersect orthogonally	L3	7
2 a	If $y = \sin \log(x^2+2x+1)$, then show that $(x+1)^2 y_{n+2} + (2n+1)(x+1)y_{n+1} + (n^2+4)y_n = 0$	L3	7
b	Find n^{th} derivative of the following (i) $\frac{6x}{(x+2)(x-2)(x-1)}$ (ii) $\cos 3x \cdot \cos 2x \cdot \cos x$	L2	6
c	Find the angle of intersection of the curve $r = a(1-\cos\theta)$ and $r = 2a \cos \theta$	L3	7
3 a	If $\frac{1}{y^m} + \frac{-1}{y^m} = 2x$, then show that $(x^2-1)y_{n+2} + (2n+1)xy_{n+1} + (n^2-m^2)y_n = 0$	L3	7
b	Find n^{th} derivative of the following (i) $\frac{x}{(x+1)(2x-3)}$ (ii) $e^{-x} \cdot \sinh 3x \cdot \cosh 2x$	L2	6
c	Find the angle between radius vector and tangent of the following (i) $r^2 \cos 2\theta = a^2$ (ii) $r = a(1-\cos\theta)$	L2	7

Prepared by:

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17/8/15

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17.8.15

HOD:

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