(Please write your Exam Roll No.) Exam Roll No. 4414214017 16

END TERM EXAMINATION

FIRST SEMESTER [BBA] NOVEMBER-DECEMBER- 2016

Paper Code: BBA-105 ***BBA(TTM)-105*** ***BBA(CAM)-105***	***Subject: Business Mathematics***

Time: 3 Hours ***Maximum Marks: 75***

Note: Attempt any five questions. All questions carry equal marks.

Q1 (a) Find the value of r if (i) ${}^{10}C_r = {}^{20}C_{r+1}$ (ii) ${}^{10}P_r = {}^{25}P_{r+2}$.

(b) In a firm there are 20 men and 10 women. In how many can you have a committee with 3 men and 2 women?

Q2 (a) Verify whether vectors $X_1=(2,2,-7)$, $X_2=(2,1,2)$, $X_3=(0,1,-3)$ are linearly dependent or independent.

(b) Solve the following system of equations using Gauss elimination method.
$2xy - y + 3z = 9; x + y + z = 6$ *and* $x - y + z = 2$.

Q3 (a) Find the point of inflection of the curve $y= x^3-3x^2+6x+5$. Also, find maxima and minima of y.

(b) Find the extreme values of $f(x,y,z) = 2x + 3y + z$ such that $x^2 + y^2=5$ and $x+z=1$.

Q4 (a) Solve the differential equation
$(x^2+4y^2+xy)\,dx=x^2\,dy$

(b) Solve $(1-x^2)(1-y)\,dx=xy(1+y)dy$

Q5 Solve the following differential equations

(a) $\frac{dy}{dx} = 1 + x + y + xy$

(b) $\frac{dy}{dx} + x^2 = x^2 e^{3y}$

(c) $\frac{dy}{dx} + 1 = e^{x+y}$

Q6 If a= 2i-j+2k and b=10i- 2j+7k, find the value of a $a \times b$. Also find the unit vector perpendicular to given vector.

Q7 If a=2i-j+3k, b=-i+2j+k and c=3i+j-2k find

(a) $a \times b$

(b) a.b

(c) $a \times (a \times b)$

(d) $a \times (b \times c)$

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