QPC: RJ20BSCAG019

Reg. No.										

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GIET UNIVERSITY, GUNUPUR – 765022

B. Sc (AG) (First Semester) Examinations, June – 2021

EM111– Elementary Mathematics

Time: 2 hrs Maximum : 50 Marks

The figures in the right hand margin indicate marks.

PART – A

Q.1. **Fill in the blanks with suitable word / figure.** **(0.5 x 10 = 5 Marks)**

a. the determinant of matrix $\begin{pmatrix} 1 & 0 & -3 \\ 3 & -1 & 2 \\ 4 & 5 & 6 \end{pmatrix}$ is ----------

b. The lines 2x-3y+1=0 and 3x+ky-1=0 are perpendicular to each other, if k=---------

c. The slope of the line joining the points (1, 4) and (3,5) is------

d. two lines are parallel and their slopes are m, n then-----

e. The equation of line passing through the points (1,1) and (-2,-2) is----------

f. The centre of the circle $x^2 + y^2 + 2x - 6y + 1 = 0$ is----------

g. The radius of the circle $x^2 + y^2 - 2x + 4y + 1 =$ is--------

h. The radius of unit circle is-------

i. What is c if y= x+c is a tangent to the circle $x^2 + y^2 = 8$ is----------

j. $\frac{d}{dx}$ (a^x) is ----------

Q. 2. Define (or) Explain the following in one or two sentences **(1 x 5 = 5 Marks)**

a. Locus
b. Equation of straight line in slope –intercept form
c. upper triangular matrix
d.continuous function
e. Integration

Q3. Match the following **(0.5 x 10 = 5 Marks)**

Column – A			Column – B	
(a)	$\frac{d}{dx}$ (k)		(i)	–x
(b)	If $x < 0$ *then* $\lvert x \rvert$		(ii)	e^x
(c)	$\frac{d}{dx}$ (cos hx)		(iii)	tanx- sec x
(d)	Slope of y=2x+3		(iv)	x cosx+ sinx
(e)	Unit circle radius		(v)	0
(f)	$\lim_{n \to 0} \left(1 + \frac{1}{n}\right)^n$		(vi)	tanθ
(g)	$\frac{d}{dx}$ (e^x)		(vii)	e
(h)	$\frac{d}{dx}$ (x sinx)		(viii)	1
(i)	$\int \frac{1}{1+\sin x}$ dx		(ix)	sin hx
(j)	Tan (π + θ)		(x)	2

Q4. Write True or False against each statement **(0.5 x 10 = 5 Marks)**

a. The derivative of constant is zero
b. The integration of 1 is x
c. Integral value of sin x is cosx
d. Row matrix contains only one row.
e. The matrix in which rows and columns are equal is called rectangular matrix
f. Every second degree equation represents a circle
g. The equation x=k represents a line parallel to x-axis
h. The point (-1,2) lies on the line 2x+3y-4=0
i. The equation of the line through (1,1) and (-2,-2) is y= -2x
j. Null matrix contains all elements are zeros

PART – B

Attempt *ANY FIVE* questions. All question carries equal marks **(6 x 5 = 30 Marks)**

5. If $A=\begin{pmatrix} 2 & -4 \\ -5 & 3 \end{pmatrix}$ then Find $A+A^T$ & $A-A^T$.
6. Find the equation to the circle having the points (3,-4) and (-2,5) as the ends of diameter.
7. Find the equation to the locus of points equidistant from the points (-3,2) and (0,4).
8. If $A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 7 & 6 \\ 8 & 9 & 1 \end{pmatrix}$ & $B= \begin{pmatrix} 5 & 8 & 4 \\ 2 & 3 & 2 \\ 1 & 2 & 1 \end{pmatrix}$ Find 2A+ 3B.
9. $Evaluate \int \frac{logx}{x}$ dx
10. $Find \frac{d}{dx}$ (e^x sinx cosx)

--- End of Paper ---