LHR :

Roll No _____ (To be filled in by the candidate)

(Academic Sessions 2015 – 2017 to 2017 – 2019)

MATHEMATICS 219-(INTER PART – II) Time Allowed : 30 Minutes

Q.PAPER – II (Objective Type) GROUP – II Maximum Marks : 20

PAPER CODE = 8194

Note : Four possible answers A, B, C and D to each question are given. The choice which you think is correct, fill that circle in front of that question with Marker or Pen ink in the answer-book. Cutting or filling two or more circles will result in zero mark in that question.

1-1	The solution of the inequality $x+2y<6$ is :			
	(A) (1 , 1)	(B) (1 , 3)	(C) (1 , 4)	(D) (1 , 5)
2	The mid point of line segment joining A (– 8 , 3) , B (2 , – 1) is :			
	(A) (– 6 , 2)	(B) (10 , 4)	(C) (– 3 , 1)	(D) (– 16 , – 3)
3	Non-zero vector $\underline{a}$ and $\underline{b}$ are parallel if $\underline{a}\times\underline{b}=$:			
	(A) 0	(B) 1	(C) – 1	(D) (a, b)
4	The perpendicular distance of a line $5x+12y=7$ from origin is :			
	(A) $\frac{1}{13}$	(B) $\frac{13}{7}$	(C) $\frac{7}{13}$	(D) -7
5	The triple scalar product of vectors, calculates the volume of :			
	(A) Triangle	(B) Parallelogram	(C) Tetrahedron	(D) Parallelepiped
6	y-intercept of the line $2x-y-4=0$ is :			
	(A) 2	(B) – 2	(C) 4	(D) – 4
7	An angle in the semi circle is of measure :			
	(A) 30°	(B) 60°	(C) 90°	(D) 180°
8	The radius of circle $x^2+y^2=5$ is :			
	(A) 25	(B) $\sqrt{5}$	(C) 5	(D) (0 , 0)
9	The equation of line $\frac{x}{b}+\frac{y}{a}=1$ is in :			
	(A) Normal form	(B) Intercept form		
	(C) Point-slope form	(D) Two-points form		

(Turn Over)

Roll No _____ LHR. _____ (To be filled in by the candidate)

(Academic Sessions 2015 – 2017 to 2017 – 2019)

MATHEMATICS 219-(INTER PART – II) Time Allowed : 2.30 hours

PAPER – II (Essay Type) GROUP – II Maximum Marks : 80

SECTION – I

2. Write short answers to any EIGHT (8) questions : **16**

(i) Define implicit function.

(ii) $f(x)=3x^4-2x^2$, $g(x)=\frac{2}{\sqrt{x}}$,find $f(g(x))$

(iii) Evaluate $\lim\limits_{x\to 2}\frac{\sqrt{x}-\sqrt{2}}{x-2}$

(iv) Find derivative by definition of x^2

(v) Differentiate w.r.t. ' x ' $\sqrt{\frac{a-x}{a+x}}$

(vi) Find $\frac{dy}{dx}$ if $x^2-4xy-5y=0$

(vii) Prove that $\frac{d}{dx}(\cot^{-1}x)=-\frac{1}{1+x^2}$

(viii) Find $\frac{dy}{dx}$ if $y=x\cos y$

(ix) Find $f'(x)$ if $f(x)=\sqrt{\ell n(e^{2x}+e^{-2x})}$

(x) Find y_2 if $x=at^2$, $y=bt^4$

(xi) Define Maclaurin series.

(xii) Determine the interval in which $f(x)$ is increasing or decreasing if $f(x)=\sin x$, $x\in(0,\pi)$

3. Write short answers to any EIGHT (8) questions : **16**

(i) Using differential, find $\frac{dy}{dx}$ when $xy-\ell nx=c$

(ii) Evaluate $\int\frac{(\sin x+\cos^2 x)}{\cos^2 x.\sin x}\,dx$

(iii) Find $\int x(\sqrt{x}+1)\,dx$; $x>0$

(iv) Evaluate $\int a^{x^2}.x\,dx$; $a>1$

(v) Find the anti derivative of $x\,.\,e^x$

(vi) Evaluate $\int e^x\,(\cos x+\sin x)\,dx$

(vii) State ' Fundamental Theorem' of calculus.

(viii) Compute $\int_{-1}^{1}\left(x^{1/3}+1\right)dx$

(ix) Find the area above x-axis and under the curve $y=5-x^2$ from $x=-1$ to $x=2$

(x) Solve the differential equation $\sin y\,.\,\cos ecx\,.\,\frac{dy}{dx}=1$

(xi) Define ' decision variables'.

(xii) Graph solution set of inequality $2x+y\geq 2$ in $x-y$ plane.

(Turn Over)