Inter (Part-II) 2018

Mathematics	Group-II	PAPER: II
Time: 30 Minutes	(OBJECTIVE TYPE)	Marks: 20

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- $\frac{d}{dx}\cos h\, x =$:

(a) $-\sin hx$ (b) $\sec hx$

(c) $-\sec hx$ (d) $\sin hx$ √

2- Solution of $\frac{dy}{dx} = \frac{-y}{x}$ is:

(a) $\frac{x}{y} = c$ (b) $\frac{y}{x} = c$

(c) $y = cx$ (d) $xy = c$ √

3- If at least one vertical line meets the curve at more than two points, then curve is:

(a) A function (b) Not a function √

(c) One-to-one function (d) Onto function

4- $\int \sec^2 x\, dx$:

(a) $\tan x$ √ (b) $\frac{\sec^3 x}{3}$

(c) $\tan^2 x$ (d) $\sec x \tan x$

5- Domain of $f(x) = x^2 + 1$:

(a) R √ (b) $R - \{1\}$

(c) $R - \{-1\}$ (d) $[1, \infty]$

6- $\int \sin x \cos x\, dx$:

(a) $\frac{1}{2}\cos 2x$ (b) $-\frac{1}{2}\cos 2x$

(c) $\frac{\sin^2 x}{2}$ √ (d) $\frac{\cos^2 x}{2}$

7- If $x = f(\theta)$, $y = g(\theta)$, then $\frac{dy}{dx}$:

(a) $\frac{dy}{d\theta}\frac{d\theta}{dx}$ ✓ (b) $\frac{dx}{d\theta}\frac{d\theta}{dy}$

(c) $\frac{d\theta}{dy}\frac{dx}{d\theta}$ (d) $\frac{dy}{d\theta}\frac{dx}{d\theta}$

8- $\frac{d}{dx}\log_a x =$:

(a) $\frac{1}{x}$ (b) $x \ln x - x$

(c) $\frac{1}{x}\ln a$ (d) $\frac{1}{x \ln a}$ ✓

9- $\int \frac{1}{x\sqrt{x^2-1}}\,dx$:

(a) $\sin^{-1} x$ (b) $\tan^{-1} x$

(c) $\sec^{-1} x$ ✓ (d) $\text{cosec}^{-1} x$

10- $\frac{d}{dx}\sec hx =$:

(a) sec hx tan h x (b) –sec hx tan h x ✓

(c) tan h^2 x (d) sec h^2 x

11- For ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$, $(a > b)$, then eccentricity e = :

(a) $\frac{\sqrt{a^2-b^2}}{a}$ ✓ (b) $\frac{\sqrt{a^2+b^2}}{a}$

(c) $\frac{\sqrt{b^2-a^2}}{a}$ (d) $\frac{\sqrt{b^2-a^2}}{b}$

12- Horizontal line through (7, –9) is:

(a) x = 7 (b) x = –9

(c) y = 7 (d) y = –9 ✓

13- Projection of vector $\vec{u}$ on vector $\vec{v}$ is:

(a) $\frac{\vec{u}\cdot\vec{v}}{|v|}$ ✓ (b) $\frac{\vec{u}\cdot\vec{v}}{|u|}$

(c) $\frac{\vec{u}\times\vec{v}}{|v|}$ (d) $\frac{\vec{u}\times\vec{v}}{|u|}$

14- System of linear inequalities involved in the problem is called:

(a) Coefficients (b) Solution

(c) Problem constraints ✓

(d) Boundaries

15- If $\vec{v}$ is any vector, then vector of magnitude 5 opposite to $\vec{v}$ is:

(a) $5\vec{v}$ (b) $-5\vec{v}$

(c) $5\frac{\vec{v}}{|v|}$ (d) $-5\frac{\vec{v}}{|v|}$ ✓

16- Equation of line bisecting II and IV quadrant:

(a) $y = x$ (b) $y = -x$ ✓

(c) $y = \frac{1}{x}$ (d) $x + y = 1$

17- Joint equation of two lines is $ax^2 + 2hxy + by^2 = 0$, if θ is angle between them, then $\tan\theta$ = :

(a) $\frac{2\sqrt{h^2 + ab}}{a + b}$ (b) $\frac{2\sqrt{h^2 - ab}}{a + b}$ ✓

(c) $\frac{\sqrt{h^2 + ab}}{a + b}$ (d) $\frac{\sqrt{h^2 - ab}}{a + b}$

18- Set of all points equidistant from a fixed point form:

(a) Ellipse (b) Parabola

(c) Hyperbola (d) Circle ✓

19- Distance of (x_1, y_1) from line $ax + by + c = 0$ is:

(a) $\frac{|ax_1 + by_1 + c}{\sqrt{a^2 + b^2}}$ ✓ (b) $\frac{|ax_1 + by_1 - c|}{\sqrt{a^2 + b^2}}$

(c) $\frac{|ax_1 + by_1 + c|}{\sqrt{a + b}}$ (d) $\frac{|ax_1 + by_1 - c|}{\sqrt{a + b}}$

20- Focal chord perpendicular to axis of parabola is called:

(a) Latus Rectum ✓ (b) Eccentricity

(c) Vertex (d) Axis