Mathematics

PR – XII (A-I-A) (24)

۱۔ ہر سوال کے سامنے چار دائرے دیئے گئے ہیں۔ صرف صحیح جواب والا دائرہ بھر دیں۔

۲۔ دائروں کو شیڈ (بھرنے) کے لیے نیلے یا کالے رنگ کا پن استعمال کریں۔

۳۔ ہر سوال میں ایک سے زائد دائرے بھرنے سے جواب غلط تصور ہوگا۔

Time: 20 Min **SECTION-A** Marks: 20

1) The logarithmic form of $b^y = x$ is= _____.

● $\log_b x = y$ ○ $\log_b y = x$ ○ $\log_y x = b$ ○ $\log_{10} y = x$

2) If $f(x) = \frac{x^2 - 3}{x - 1}$, then f(1) = _____.

○ -1 ○ 1 ○ 0 ● Undefined

3) If f(x) = sin (x) then f'(x) is = _____.

○ -cos(x) ○ sin x ○ -sin x ● cos x

4) $\lim_{x \to a} \frac{a^x - 1}{x}, a > 0$ =_____.

● lna ○ lnx ○ 0 ○ Does not exist

5) $\frac{d}{dx}(\cos^{-1} x) =$ _____.

○ cosu ○ -cosu ● $-\sin u \frac{du}{dx}$ ○ $-\cos u \frac{du}{dx}$

6) $\frac{d}{dx}(\cos^{-1} x) =$ _____.

○ $\frac{1}{\sqrt{1-x^2}}$ ● $\frac{-1}{\sqrt{1-x^2}}$ ○ $\frac{1}{\sqrt{x^2-1}}$ ○ $\frac{-1}{\sqrt{x^2-1}}$

7) The critical value of $f(x) = \frac{x^2}{x-2}$ are = _____.

○ 0,2 ○ 0,2,4 ● 0,4 ○ 0,1,2

8) $\int e^x dx =$ _____.

○ $xe^x + c$ ● $e^x + c$ ○ $xe^x - 1 + c$ ○ $x + c$

9) The function f(x) is concave upward on (a,b) if_____.

○ $f''(x) \le 0$ ○ $f''(x) \ge 0$ ● $f''(x) > 0$ ○ $f''(x) < 0$

10) If for all a<x<b and f'(x)<0, then f(x) is strictly____.

● Increasing ○ Decreasing

○ Relative maximum ○ Relative minimum

11) The distance between (0,1) and (-1,3) is = _____.

○ 0 ○ 1 ○ 3 ● $\sqrt{5}$

12) The slope of line y = x + c, is = _____.

● 1 ○ 2 ○ 3 ○ 2.33

13) Which of the given is homogenous equation____.

● $3x^2y - 4xy + 5y^2 = 0$ ○ $4xy^2 + 5y^2 = 0$

○ $x^2y - 4xy^2 = 0$ ○ $3x^2y - 4xy^2 + y^2 = 0$

14) The coordinate of center in $(x-1)^2 + (y-2)^2 = r^2$, are____.

○ (h,k) ● (1,2) ○ (0,0) ○ (-h,-k)

15) The shorter axis of an ellipse is called the____axis.

○ Major ● Minor ○ Transverse ○ Conjugate

16) The eccentricity e, of the conic is parabola if____.

○ e < 1 ○ e > 1 ○ e ≤ 1 ● e = 1

17) If $f(x,y) = \sqrt{x^2 - y^2 + 2}$, then $f(1,-1)$ is_____.

○ 1 ● 2 ○ 3 ○ 4

18) The solution of $\frac{dy}{dx} = \cos x$ at $y(0) = 1$, is _____.

● sinx + 1 ○ -sinx + 2 ○ -sinx + 1 ○ sinx + 2

19) The latus rectum in y2 = -4ax, is_____.

○ x=a ● x= -a ○ y=a ○ y= - a

20) The degree and order of $\frac{d^2y}{dx^2} - \frac{dy}{dx} = 0$ is_____.

○ (1,2) ● (2,1) ○ (2,2) ○ (1,1)