

1219 Warning:- Please write your Roll No. in the space provided and sign.
(Inter Part – II) (Session 2015-17 to 2017-19)

Roll No.

Sig. of Student

Paper (II)

Mathematics (Objective)

Time Allowed:- 30 minutes

PAPER CODE 4191

Maximum Marks:- 20

Note:- You have four choices for each objective type question as A, B, C and D. The choice which you think is correct; fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Write PAPER CODE, which is printed on this question paper, on the both sides of the Answer Sheet and fill bubbles accordingly, otherwise the student will be responsible for the situation. Use of Ink Remover or white correcting fluid is not allowed.

Q. 1

1) $x = at^2$ and $y = -2at$ are parametric equations of the curve

(A) $y^2 = -4ax$

(B) $y^2 = 4ax$

(C) $x^2 = -4ay$

(D) $x^2 = 4ay$

2) $\lim_{x \rightarrow 3} \frac{x-3}{\sqrt{x}-\sqrt{3}}$ equals

(A) $\frac{1}{2\sqrt{3}}$

(B) $\frac{1}{\sqrt{3}}$

(C) $\sqrt{3}$

(D) $2\sqrt{3}$

3) The derivative of $\cot x$ w.r.t x equals

(A) $-\operatorname{Cosec}^2 x$

(B) $\operatorname{Cosec}^2 x$

(C) $-\sec^2 x$

(D) $\sec^2 x$

4) If $y = e^{f(x)}$, then $f'(x)$ will be equal to

(A) $y \cdot \frac{dy}{dx}$

(B) $y \cdot \frac{dx}{dy}$

(C) $\frac{1}{y} \frac{dy}{dx}$

(D) $\frac{1}{y} \frac{dx}{dy}$

5) $\frac{d}{dx} [\ln(\sinh x)]$ equals

(A) $\coth x$

(B) $\tanh x$

(C) $-\coth x$

(D) $-\tanh x$

6) Slope of tangent to the curve $x^2 - y^2 - 12 = 0$ at point (4, 2) will be equal to

(A) 4

(B) $\frac{1}{4}$

(C) 2

(D) $\frac{1}{2}$

7) $\int \cot x \, dx$ equals

(A) $\ln \cos x + c$

(B) $\ln \sin x + c$

(C) $-\ln \cos x + c$

(D) $-\ln \sin x + c$

8) $\int \frac{1}{x^2 + 2x + 5} \, dx$ equals

(A) $2 \tan^{-1} \left(\frac{x+1}{2} \right) + c$

(B) $2 \tan^{-1} \left(\frac{x-1}{2} \right) + c$

(C) $\frac{1}{2} \tan^{-1} \left(\frac{x-1}{2} \right) + c$

(D) $\frac{1}{2} \tan^{-1} \left(\frac{x+1}{2} \right) + c$

P.T.O

1229 - 1219 - 18000 (1)

SAR

1219 Warning:- Please, do not write anything on this question paper except your Roll No.

Mathematics (Subjective)

Time Allowed: 2.30 hours

(Session 2015-17 to 2017-19)

(Inter Part - II) Paper (II)

Maximum Marks: 80

Section ----- I

2. Answer briefly any Eight parts from the followings:-

8 × 2 = 16

(i) $f(x) = \sqrt{x+4}$ Find $f(x^2 + 4)$

(ii) Evaluate $\lim_{x \rightarrow 0} (1+3x)^{\frac{1}{x}}$

(iii) Evaluate $\lim_{x \rightarrow 0} \frac{x}{\tan x}$

(iv) Find $\frac{dy}{dx}$ if $y = \frac{x^2+1}{x^2-3}$

(v) Find $\frac{dy}{dx}$ if $xy + y^2 = 2$

(vi) Differentiate w.r.t x $\sin^{-1} \sqrt{1-x^2}$

(vii) Find $\frac{dy}{dx}$ if $y = \ln(9-x^2)$

(viii) Find the extreme value of $f(x) = x^2 - x - 2$

(ix) Find $\frac{dy}{dx}$ if $y = 5e^{3x-4}$

(x) Find $\frac{dy}{dx}$ if $y = \sinh 3x$

(xi) Find $\frac{dy}{dx}$ if $y = \sqrt{x+\sqrt{x}}$

(xii) Define point of inflection of a function.

3. Answer briefly any Eight parts from the followings:-

8 × 2 = 16

(i) Find δy if $y = x^2 - 1$

(ii) Evaluate $\int \frac{1}{1+\cos x} dx, \left(-\frac{\pi}{2} < x < \frac{\pi}{2}\right)$

(iii) Find the approximate increase in the volume of a cube if the length of its each edge changes from 5 to 5.02

(iv) Evaluate $\int \frac{3x+2}{\sqrt{x}} dx$

(v) Evaluate $\int \frac{ax+b}{ax^2+2bx+c} dx$

(vi) Find $\int \frac{1}{x \ln x} dx$

(vii) Find $\int x e^x dx$

(viii) Evaluate $\int x^5 \ln x dx$

(ix) Evaluate $\int_{\frac{\pi}{6}}^{\frac{\pi}{4}} \cos t dt$

(x) Evaluate $\int_0^2 (e^{\frac{x}{2}} - e^{-\frac{x}{2}}) dx$

(xi) Define feasible solution.

(xii) Graph the solution set of $5x - 4y \leq 20$

P.T.O

1230 -- 1219 -- 18000