

Model Question paper

Integral Calculus 1

11th Standard

Maths

Reg.No. :

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I. Answer all the questions.

II. Use blue pen only.

Time : 02:00:00 Hrs

Total Marks : 50

10 x 1 = 10

Part - A

1) $\int \sin^2 x dx = \dots\dots\dots$

(a) $\frac{\sin^3 x}{3} + c$ (b) $-\frac{\cos^2 x}{2} + c$ (c) $\frac{1}{2} \left[x - \frac{\sin 2x}{x} \right] + c$ (d) $\frac{1}{2} [1 + \sin 2x] + c$

2) $\int \frac{1}{e^x} dx = \dots\dots\dots$

(a) $\log e^x + c$ (b) $-\frac{1}{e^x} + c$ (c) $\frac{1}{e^x} + c$ (d) $x + c$

3) $\int \log x dx = \dots\dots\dots$

(a) $\frac{1}{x} + c$ (b) $\frac{(\log x)^2}{2} + c$ (c) $x \log x + x + c$ (d) $x \log x - x + c$

4) $\int \sin 7x \cos 5x dx =$

(a) $\frac{1}{35} \cos 7x \sin 5x + c$ (b) $-\frac{1}{2} \left[\frac{\cos 12x}{12} + \frac{\cos 2x}{2} \right] + c$ (c) $-\frac{1}{2} \left(\frac{\cos 6x}{6} + \cos x \right) + c$ (d) $\frac{1}{2} \left[\frac{\cos 12x}{12} + \frac{\cos 2x}{2} \right] + c$

5) $\int \frac{e^x}{e^x + 1} dx = \dots\dots\dots$

(a) $\frac{1}{2} x + c$ (b) $\frac{1}{2} x + c$ (c) $\log(ex + 1) + c$ (d) $x + e^x + c$

6) $\int \sqrt{x} dx$ is

(a) $\frac{1}{2\sqrt{x}} + c$ (b) $\frac{2}{3} x^{1/2} + c$ (c) $\frac{2}{3} x^{3/2} + c$ (d) $\frac{2}{3} x^{-3/2} + c$

7) $\int (4x^3 - 4x^{-5}) dx = \dots\dots\dots + c$

(a) x^4 (b) $x^4 + \frac{1}{x^4}$ (c) $12x^2 + 20x^4$ (d) $x^4 - \frac{1}{x^4}$

8) $\int \frac{1}{x \log x} dx = \dots\dots\dots + c$

(a) $\log(\log x)$ (b) $\frac{\log x}{|\log x|}$ (c) $\log |\log x|$ (d) $\frac{|\log x|}{\log x}$

9) $\int \frac{2x+9}{x^2+9x+10} dx = \dots\dots\dots + c$

(a) $\log(x^2 - 9x - 10)$ (b) $\log|x^2 + 9x + 10|$ (c) $\log(2x+9)$ (d) $\log|2x-9|$

10) $\int \cos^3 x \sin 2x dx = \dots\dots\dots + c$

(a) $-\frac{2(\cos x)^3}{5}$ (b) $-\frac{2}{5} \cos x^3$ (c) $\frac{2}{5} (\cos x)^3$ (d) $\frac{2}{5} |\cos x^3|$

Part - B

5 x 2 = 10

11) Integrate the following with respect to x.

x^{16}

12) Integrate the following with respect to x.

$\frac{1}{x^5}$

13) Integrate the following with respect to x.

(i) $\frac{1}{\operatorname{cosec} x}$

14) Integrate the followings

$\frac{1}{x^2 - 25}$

15) Integrate the followings.

$\sqrt{1+x^2}$

Part - C

5 x 3 = 15

16) Integrate the following with respect to x.

$\frac{1}{(x+5)^4}$

17) Integrate the following with respect to x.

$\frac{1}{(ax+b)^8}$

18) Integrate the following

$x^5(1+x^6)^7$

19) Integrate the following with respect to x.

$\cos(5-2x)$

20) Integrate the following

$$\frac{e^{\tan^{-1}x}}{1+x^2}$$

Part - D

3 x 5 = 15

21) Integrate the followings with respect to x

$$x \cos 5x - \cos 2x$$

22) Integrate the following with respect to x

$$\frac{3}{x} + \frac{m}{4x+1} - 2(5-2x)^5$$

23) Integrate the following with respect to x

$$(ae)^x - a^{-x} + b^x$$

