Model Question paper

Integral Calculus 3

11th Standard

Maths

Reg.No. : | | | | | | |

I. Answer all the questions.

II. Use blue pen only.

Time : 02:00:00 Hrs

Total Marks : 60

Part - A

10 x 1 = 10

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

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

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

(a) $\frac{1}{35} cos7x\ sin5x + c$ (b) $-\frac{1}{2}\left[\frac{cos12x}{12} + \frac{cos2x}{2}\right] + c$ (c) $-\frac{1}{2}\left(\frac{cos6x}{6} + cosx\right) + c$ (d) $\frac{1}{2}\left[\frac{cos12x}{12} + \frac{cos2x}{2}\right] + c$

3) $\int \frac{x}{x+x^2} dx =$ .....

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

4) $\int tan\ x\ dx =$ .....

(a) $log\ cos\ x + c$ (b) $log\ sec\ x + c$ (c) $sec^2\ x + c$ (d) $\frac{tan^2 x}{2} + c$

5) $\int \left(\frac{x-1}{x+1}\right) dx =$ .....

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

6) $\int \left(x + \frac{1}{x}\right) dx$=_____+c

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

7) $\int cos(2x+3) dx$=_____+c

(a) log |cosx+sinx| (b) log(cos x+sin x) (c) log(cos x-sin x) (d) log |cos x-sin x|

8) $\int \frac{4cosec^2 x}{1+cotx} dx$=_____+c

(a) log(x+log secx) (b) log |x+log secx| (c) log(1+cot x) (d) log |1+cot x|

9) $\int \left(e^{3x} + 1\right)^2 dx$=_____+c

(a) 2(e^{3x}+1) (b) 6(e^{3x}+1) (c) $\frac{e^{6x}}{6} + 2\frac{e^{3x}}{3} + x$ (d) $\frac{1}{\left(e^{3x}+1\right)^3}$

10) $\int \frac{sin^{-1}x}{\sqrt{1-x^2}} dx$=_____+c

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

Part - B

5 x 2 = 10

11) Integrate the following with respect to x.

(i) $\left(\frac{1}{x^3}\right)^{\frac{1}{4}}$

12) Integrate the following.

$sin^2 3x + 4cos\ \ 4x$

13) Integrate the following.

$\frac{1-sinx}{1+sinx}$

14) Evaluate the following integrals: $\int \frac{sin\ \ 2x}{1+sin^2 x} dx$

15) Integrate the followings

$\frac{1}{\sqrt{x^2+3x+10}}$

Part - C

5 x 3 = 15

16) Integrate the following with respect to x.

$\frac{1}{3x+2}$

17) Integrate the following.

tan x

18) Integrate the following

$$\frac{\sin 2x}{a\ \cos^2 x + b\sin^2 x}$$

19) Integrate the following with respect to x.

$cosec(4x + 2)$ $cot(4x + 2$

20) Integrate the following with respect to x

$$\frac{1}{\tan(2x+3)\sin(2x+3)}$$

Part - D

5 x 5 = 25

21) Integrate the followings with respect to x

$$\tan^{-1}\left(\frac{3x-x^3}{1-3x^2}\right)$$

22) Integrate the following with respect to x.

x^6

23) Integrate the following:

$$\frac{1}{\sqrt{x^2-91}}$$

24) Integrate $\frac{e^{x/2}-e^{-x/2}}{e^x-e^{-x}}$

25) Integrate $\frac{1}{\sqrt{a^2-x^2}}$

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