QB365 Question Bank Software Study Materials

Integral Calculus 50 Important 1 Marks Questions With Answers (Book Back and Creative)

11th Standard

Maths

Total Marks : 50

Multiple Choice Question

50 x 1 = 50

1) If $\int f(x)dx = g(x) + c$, then $\int f(x)g'(x)dx$

(a) $\int (f(x))^2 dx$ (b) $\int f(x)g(x)dx$ (c) $\int f'(x)g(x)dx$ (d) $\int (g(x))^2 dx$

2) If $\int \frac{3^{\frac{1}{x}}}{x^2}dx = k(3^{\frac{1}{x}}) + c$, then the value of k is

(a) log 3 (b) -log 3 **(c)** $-\frac{1}{log3}$ (d) $\frac{1}{log3}$

3) If $\int f'(x)e^{x^2}dx = (x-1)e^{x^2} + c$, then f(x) is

(a) $2x^3 - \frac{x^2}{2} + x + c$ (b) $\frac{x^3}{2} + 3x^2 + 4x + c$ (c) $x^3 + 4x^2 + 6x + c$ **(d)** $\frac{2x^3}{3} - x^2 + x + c$

4) The gradient (slope) of a curve at any point (x, y) is $\frac{x^2-4}{x^2}$. If the curve passes through the point (2, 7), then the equation of the curve is

(a) $y = x + \frac{4}{x} + 3$ (b) $y = x + \frac{4}{x} + 4$ (c) $y = x^2 + 3x + 4$ (d) $y = x^2 - 3x + 6$

5) If $\int \frac{e^x(1+x)}{\cos^2(xe^x)}dx$ is

(a) $\cot(xe^x)+c$ (b) $\sec(xe^x)+c$ **(c) $\tan(xe^x)+c$** (d) $\cos(xe^x)+c$

6) $\int \frac{\sqrt{\tan x}}{\sin 2x}dx$ is

(a) $\sqrt{tan\ x} + c$ (b) $2\sqrt{tan\ x} + c$ (c) $\frac{1}{2}\sqrt{tan\ x} + c$ (d) $\frac{1}{4}\sqrt{tan\ x} + c$

7) $\int \sin^3 x dx$ is

(a) $\frac{-3}{4}cos\ x - \frac{cos\ 3x}{12} + c$ (b) $\frac{3}{4}cos\ x + \frac{cos\ 3x}{12} + c$ **(c)** $\frac{-3}{4}cos\ x + \frac{cos\ 3x}{12} + c$ (d) $\frac{-3}{4}sin\ x - \frac{sin\ 3x}{12} + c$

8) $\int \frac{e^{6\log x} - e^{5\log x}}{e^{4\log x} - e^{3\log x}}dx$ is

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

9) $\int \frac{\sec x}{\sqrt{\cos 2x}}dx$ is

(a) $\tan^{-1}(\sin x)+c$ (b) $2\sin^{-1}(\tan x)+c$ (c) $\tan^{-1}(\cos x)+c$ **(d) $\sin^{-1}(\tan x)+c$**

10) $\int \tan^{-1}\sqrt{\frac{1-\cos 2x}{1+\cos 2x}}dx$ is

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

11) $\int 2^{3x+5}dx$ is

(a) $\frac{3(2^{3x+5})}{log2} + c$ (b) $\frac{2^{3x+5}}{2log(3x+5)} + c$ (c) $\frac{2^{3x+5}}{2log3} + c$ **(d)** $\frac{2^{3x+5}}{3log2} + c$

12) $\int \frac{\sin^8 x - \cos^8 x}{1 - 2\sin^2 x \cos^2 x}dx$ is

(a) $\frac{1}{2}sin2x + c$ **(b)** $-\frac{1}{2}sin2x + c$ (c) $\frac{1}{2}cos2x + c$ (d) $-\frac{1}{2}cos2x + c$

13) $\int \frac{e^x(x^2\tan^{-1}x + \tan^{-1}x + 1)}{x^2+1}dx$ is

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

14) $\int \frac{x^2+\cos^2 x}{x^2+1}\text{cosec}^2\ x dx$ is

(a) cot x + sin $^{-1}$x + c (b) -cot x + tan^{-1}x + c (c) -tan x + cot^{-1}x + c **(d) -cot x - tan^{-1}x + c**

15) $\int x^2 \cos x dx$ is

(a) x^2 sin x + 2x cos x - 2sin x + c (b) x^2 sin x - 2x cos x - 2sin x + c (c) -x^2 sin x + 2x cos x + 2sin x + c

(d) -x^2 sin x - 2x cos x + 2sin x + c

16) $\int \sqrt{\frac{1-x}{1+x}} dx$ is

(a) $\sqrt{1-x^2} + sin^{-1}x + c$ (b) $sin^{-1}x - \sqrt{1-x^2} + c$ (c) $log|x + \sqrt{1-x^2}| - \sqrt{1-x^2} + c$

(d) $\sqrt{1-x^2} + log|x + \sqrt{1-x^2}| + c$

17) $\int \frac{dx}{e^x - 1}$ is

(a) $log|e^x| - log|e^x - 1| + c$ (b) $log|e^x| + log|e^x - 1| + c$ **(c)** $log|e^x - 1| - log|e^x| + c$

(d) $log|e^x + 1| - log|e^x| + c$

18) $\int e^{-4x} \cos x dx$ is

(a) $\frac{e^{-4x}}{17}[4cos\ x - sin\ x] + c$ **(b)** $\frac{e^{-4x}}{17}[-4cos\ x + sin\ x] + c$ (c) $\frac{e^{-4x}}{17}[4cos\ x + sin\ x] + c$

(d) $\frac{e^{-4x}}{17}[-4cos\ x - sin\ x] + c$

19) $\int \frac{\sec^2 x}{\tan^2 x - 1} dx$ is

(a) $2log|\frac{1-tanx}{1+tan\ x}| + c$ (b) $log|\frac{1+tanx}{1-tan\ x}| + c$ (c) $\frac{1}{2}log|\frac{tanx+1}{tan\ x-1}| + c$ **(d)** $\frac{1}{2}log|\frac{tanx-1}{tan\ x+1}| + c$

20) $\int e^{-7x} \sin 5x dx$ is

(a) $\frac{e^{-7x}}{74}[-7sin5x - 5cos5x] + c$ (b) $\frac{e^{-7x}}{74}[7sin5x + 5cos5x] + c$ (c) $\frac{e^{-7x}}{74}[7sin5x - 5cos5x] + c$

(d) $\frac{e^{-7x}}{74}[-7sin5x + 5cos5x] + c$

21) $\int x^2 e^{\frac{x}{2}} dx$ is

(a) $x^2 e^{\frac{x}{2}} - 4xe^{\frac{x}{2}} - 8e^{\frac{x}{2}} + c$ (b) $2x^2 e^{\frac{x}{2}} - 8xe^{\frac{x}{2}} - 16e^{\frac{x}{2}} + c$ **(c)** $2x^2 e^{\frac{x}{2}} - 8xe^{\frac{x}{2}} + 16e^{\frac{x}{2}} + c$

(d) $x^2 \frac{e^{\frac{x}{2}}}{2} - \frac{xe^{\frac{x}{2}}}{4} + \frac{e^{\frac{x}{2}}}{8} + c$

22) $\int \frac{x+2}{\sqrt{x^2-1}} dx$ is

(a) $\sqrt{x^2-1} - 2log|x + \sqrt{x^2-1}| + c$ (b) $sin^{-1}x - 2log|x + \sqrt{x^2-1}| + c$ (c) $2log|x + \sqrt{x^2-1}| - sin^{-1}x + c$

(d) $\sqrt{x^2-1} + 2log|x + \sqrt{x^2-1}| + c$

23) $\int \frac{1}{x\sqrt{(\log x)^2 - 5}} dx$ is

(a) $log|x + \sqrt{x^2-5}| + c$ (b) $log|logx + \sqrt{logx - 5}| + c$ **(c)** $log|logx + \sqrt{(logx)^2 - 5}| + c$

(d) $log|logx - \sqrt{(logx)^2 - 5}| + c$

24) $\int \sin \sqrt{x} dx$ is

(a) $2(-\sqrt{x}cos\sqrt{x} + sin\sqrt{x}) + c$ (b) $2(-\sqrt{x}cos\sqrt{x} - sin\sqrt{x}) + c$ (c) $2(-\sqrt{x}sin\sqrt{x} - cos\sqrt{x}) + c$

(d) $2(-\sqrt{x}sin\sqrt{x} + cos\sqrt{x}) + c$

25) $\int e^{\sqrt{x}} dx$ is

(a) $2\sqrt{x}(1 - e^{\sqrt{x}}) + c$ (b) $2\sqrt{x}(e^{\sqrt{x}} - 1) + c$ (c) $2e^{\sqrt{x}}(1 - \sqrt{x}) + c$ **(d)** $2e^{\sqrt{x}}(\sqrt{x} - 1) + c$

26) $\int sine^x$. d (e^x) = _____+c.

(a) cos (e^x) (b) sin(e^x) **(c) - cos (e^x)** (d) -sin(e^x)

27) $\int \frac{4(sin^{-1}x)^3}{\sqrt{1-x^2}}$ dx = _____+c.

(a) log (sin $^{-1}$x) **(b) (sin $^{-1}$ x)^4** (c) 4 (sin^{-1} x)^4 (d) $\frac{(sin^{-1}x)^4}{4}$

28) $\int \frac{sin\sqrt{x}}{x}$ dx = _____ +c.

(a) 2 cos $\sqrt{x}$ (b) 2 sin $\sqrt{x}$ (c) -2 sin $\sqrt{x}$ **(d) -2 cos $\sqrt{x}$**

29) $\int tan^3 2sec2x$ dx = _____+c.

(a) $\frac{1}{6}$ sec^3 2x **(b) $\frac{1}{6}$ sec^{3}2x - $\frac{1}{2}$ sec 2x** (c) $\frac{1}{2}$ sec 2x (d) $\frac{1}{6}$ sec^3 2x + $\frac{1}{2}$ sec 2x

30) $\int \frac{1}{9x^2-4}$ dx = _____+c.

(a) $\log\left|\frac{3x-2}{3x+2}\right|$ **(b) $\frac{1}{12}\log\left|\frac{3x-2}{3x+2}\right|$** (c) $12\log\left|\frac{3x-2}{3x+2}\right|$ (d) $\frac{1}{12}log\left|\frac{3x+2}{3x-2}\right|$

31) $\int \frac{4x^3+1}{x^4+x}$ dx = _____ + c.

(a) log (4x^3 +1) **(b) log (x^4 + x)** (c) log (4x^3) (d) $\frac{1}{log(x^4)}$

32) $\int \frac{x}{4+x^4}$ dx is equal to_____+c.

(a) $\frac{1}{4}$ tan^{-1} (x^2) **(b) $\frac{1}{4}$ tan$^{-1}\left(\frac{x^2}{2}\right)$** (c) $\frac{1}{2}$ tan$^{-1}\left(\frac{x^2}{2}\right)$ (d) none of these

33) $\int |x|^3$ dx is equal to _____+c.

(a) $\frac{-x^4}{4}+c$ (b) $\frac{|x|^4}{4}$ (c) $\frac{x^4}{4}$ **(d) none of these**

34) $\int e^x [f(x)+f'(x)]$ dx = _____+c.

(a) e^x f (x) (b) e^x f (x) (c) 2e^x f(x) (d) e^x - f (x)

35) $\int x$ sin x dx = -x cos x + a, then a =

(a) sin x + c (b) cos x + c (c) c (d) none of these

36) Match List - I with List II.

	List - I		List - II
i	$\int_0^{\frac{\pi}{2}} log(tan\ \ x)dx$	a	$\frac{16}{35}$
ii	$\int_0^1 x(1-x)^{10}dx$	b	$\frac{120}{46}$
iii	$\int_0^{\frac{\pi}{2}} sin^7 xdx$	c	$\frac{1}{132}$
iv	$\int_0^{\infty} x^5 e^{-4x}dx$	d	0

The Correct match is

(a)

i	ii	iii	iv
d	c	a	b

(b)

i	ii	iii	iv
d	c	b	a

(c)

i	**ii**	**iii**	**iv**
b	**d**	**c**	**a**

(d)

i	ii	iii	iv
b	c	a	d

37) $\int \frac{\sin 2x}{\sin 5x \sin 3x}2x$ is equal to _____

(a) $\log \sin 3x - \log \sin 5x + c$ (b) $\frac{1}{3}\log \sin 3x + \frac{1}{5}\log \sin 5x + c$ **(c) $\frac{1}{3}\log \sin 3x - \frac{1}{5}\log \sin 5x + c$**

(d) $3 \log \sin 3x - 5 \log' \sin 5x + c$

38) If $I = \int \sqrt{1+\sin x}dx$ then I is equal to _____

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

39) The primitive of the function $x|\cos x|$ when $\frac{\pi}{2} < x < \pi$ is given by _____

(a) cosx + xsinx **(b) -cosx - xsinx** (c) xsinx - cosx (d) None of these

40) $\int \frac{dx}{x(x^n+1)}$ is cqual to _____

(a) $\frac{1}{n}\log\left|\frac{x^n}{x^n+1}\right|+c$ (b) $\frac{1}{n}\log\left|\frac{x^n+1}{x^n}\right|+c$ (c) $\log\left|\frac{x^n}{x^n+1}\right|+c$ (d) None of these

41) $\int 4 \sin x \cos \frac{x}{2}\cos \frac{3x}{2}dx$ is equal to _____

(a) $\cos x + \frac{1}{2}\cos 2x - \frac{1}{3}\cos 3x + c$ **(b) $\cos x - \frac{1}{2}\cos 2x - \frac{1}{3}\cos 3x + c$** (c) $\cos x + \frac{1}{2}\cos 2x + \frac{1}{3}\cos 3x + c$

(d) $\cos x - \frac{1}{2}\cos 2x + \frac{1}{3}\cos 3x + c$

42) $\int \frac{1}{\sqrt{\sin^3 x \sin(x+\alpha)}} dx,\ \alpha \neq n\pi, n \in z$ is equal to _____

(a) $-2\operatorname{cosec}\alpha(\cos\alpha - \tan x \sin\alpha)^{\frac{1}{2}} + c$ (b) $-2(\cos\alpha + \cot x \sin\alpha)^{\frac{1}{2}} + c$ **(c)** $-2\operatorname{cosec}\alpha(\cos\alpha + \cot x \sin\alpha)^{\frac{1}{2}} + c$

(d) $-2\operatorname{cosec}\alpha(\sin\alpha + \cot x \cos\alpha)^{\frac{1}{2}} + c$

43) $\int \frac{px^{p+2q-1} - qx^{q-1}}{x^{2p+2q} + 2x^{p+q} + 1} dx$ is equal to _____

(a) $-\frac{x^p}{x^{p+q}+1} + c$ (b) $\frac{x^q}{x^{p+q}+1} + c$ **(c)** $-\frac{x^q}{x^{p+q}+1} + c$ (d) $\frac{x^p}{x^{p+q}+1} + c$

44) If $I_n = \int (\ln x)^n dx$, then $I_n + nI_{n-1}$ _____

(a) $\frac{(\ln x)^n}{x}$ (b) $x(\ln x)^{x-1}$ **(c)** $x(\ln x)^n$ (d) None of these

45) $\int \frac{\sin 2x}{\sin^4 x + \cos^4 x} dx$ is equal to _____

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

46) $\int \frac{\sec x dx'}{\sqrt{\sin(2x+A) + \sin A}}$ is equal to _____

(a) $\frac{\sec A}{\sqrt{2}}\sqrt{\tan x \cos A - \sin A} + c$ (b) $\sqrt{2}\sec A\sqrt{\tan x \cos A - \sin A} + c$ **(c)** $\sqrt{2}\sec A\sqrt{\tan x \cos A + \sin A} + c$

(d) None of these

47) If $\int \sqrt{1+\sin x}\ \ f(x)dx = \frac{2}{3}(1+\sin x)^{\frac{3}{2}} + c$ then f(x) equals ____

(a) cos x (b) sin x (c) tan x (d) 1

48) Let $\int e^x \{f(x) - f'(x)\} dx = \phi(x).\ \int e^x f(x) dx$ is

(a) $\phi(x) = e^x f(x)$ (b) $\phi(x) - e^x f(x)$ **(c)** $\frac{1}{2}\{\phi(x) + e^x f(x)\}$ (d) $\frac{1}{2}\{\phi(x) + e^x f'(x)\}$

49) If $y = \int \frac{dx}{(1+x^2)^{\frac{3}{2}}}$ and $y = 0$ when $x = 0$ then the value of y when $x = 1$ is _____

(a) $\frac{1}{\sqrt{2}}$ (b) $\sqrt{2}$ (c) $2\sqrt{2}$ (d) None of these

50) If $\int x^5 \left(1+x^3\right)^{\frac{2}{3}} dx = A\left(1+x^3\right)^{\frac{8}{3}} + B\left(1+x^3\right)^{\frac{5}{3}} + c$ then _____

(a) $A = \frac{1}{4}, B = \frac{1}{5}$ **(b)** $A = \frac{1}{8}, B = -\frac{1}{5}$ (c) $A = -\frac{1}{8}, B = \frac{1}{5}$ (d) None of these.