Q.N.	Question	ANS
1	Fourier coefficient 'a_0' in the Fourier series expansion of $f(x) = e^{-x}$; $0 \le x \le 2\pi$ and $f(x + 2\pi) = f(x)$ is a) $\frac{1}{\pi}(1 - e^{-2\pi})$ b) $\frac{1}{2\pi}(1 - e^{2\pi})$ c) $\frac{2}{\pi}(e^{-2\pi} - 1)$ d) $\frac{1}{\pi}(1 + e^{2\pi})$	A
2	Fourier coefficient a_0 in the Fourier series expansion of $f(x) = \left(\frac{\pi - x}{2}\right)^2$; $0 \le x \le 2\pi$ and $f(x + 2\pi) = f(x)$ is a) $\frac{\pi^2}{3}$ b) $\frac{\pi^2}{6}$ c) 0 d) $\frac{\pi}{6}$	B
3	$f(x) = x, -\pi \le x \le \pi$ *and* period is 2π.the fourier series is represented by $\frac{a_0}{2} + \sum_{n=1}^{\infty}(a_n \cos nx + b_n \sin nx)$, then fourier coefficient b_1 is a) 2 b) -1 c) 0 d) $\frac{2}{\pi}$	A
4	$f(x) = \begin{cases} 1, & -1 < x < 0 \\ \cos \pi x, & 0 < x < 1 \end{cases}$ *and* period is 2.the fourier series is represented by $\frac{a_0}{2} + \sum_{n=1}^{\infty}(a_n \cos n\pi x + b_n \sin n\pi x)$, then fourier coefficient a_0 is a) 2 b) -1 c) 1 d) $\frac{2}{\pi}$	C
5	$f(x) = x - x^3, \ -2 < x < 2$ *and* period is 4.the fourier series is represented by $\frac{a_0}{2} + \sum_{n=1}^{\infty}(a_n \cos n\pi x + b_n \sin n\pi x)$, then fourier coefficient a_0 is a)1 b)0 c)-2 d)-1	B
6	For the half range cosine series of $f(x) = \sin x, 0 \le x < \pi$ *and* period is 2π.the fourier series is represented by $\frac{a_0}{2} + \sum_{n=1}^{\infty}(a_n \cos nx)$ fourier coefficient a_0 is a) 4 b) 2 c) $\frac{2}{\pi}$ d) $\frac{4}{\pi}$	D
7	The value of b_1 in Harmonic analysis of y for the following tabulated data is: x: 0, 60, 120, 180, 240, 300, 360 y: 1.0, 1.4, 1.9, 1.7, 1.5, 1.2, 1.0 Sin x: 0, 0.866, 0.866, 0, -0.866, -0.866, 0 a) 0.0989 b) 0.3464 c) 0.1732 d) 0.6932	C
8	The value of the constant term in the fourier series of $f(x) = e^{-x}$ in $0 \le x \le 2\pi$, $f(x + 2\pi) = f(x)$ is a) $\frac{1}{\pi}(1 - e^{-2\pi})$ b) $\frac{1}{2\pi}(1 - e^{-2\pi})$ c) $1 - e^{-2\pi}$ d) $2(1 - e^{-2\pi})$	B
9	The value of the constant term in the fourier series of $f(x) = x \sin x$ in $0 \le x \le 2\pi$, is a) -2 b) 2 c) $-\frac{1}{2}$ d) -1	D

10	If $a_n = \frac{2}{n^2-1}$ for n > 1, in the fourier series of f(x) = x sin x in $0 \le x \le 2\pi$, then the value of a_1 is a) -2 b) $\frac{2}{n^2-1}$ c) - $\frac{1}{2}$ d) $\frac{1}{2}$	C
11	The value of the constant term in the fourier series of f(x)= $\begin{cases} -\pi & -\pi < x < 0 \\ x & 0 < x < \pi \end{cases}$, *is* a) $-\frac{\pi}{4}$ b) $-\frac{\pi}{2}$ c) $\frac{\pi}{4}$ d) $\frac{\pi}{2}$	A
12	The value of a_n in the fourier series of f(x)= $\begin{cases} \cos x; & -\pi < x < 0 \\ -cosx; & 0 < x < \pi \end{cases}$ a) $\frac{(-1)^n}{n}$ b) $\frac{1}{n}$ c) $\frac{(-1)^n}{n^2-1}$ d)0	D
13	The value of b_n in the fourier series of f(x) = x in $-\pi < x < \pi$, is a) 0 b) $\frac{cosn\pi}{n}$ c) $-\frac{2cosn\pi}{n}$ d) $-\frac{\cos n\pi}{n}$	C
14	The Fourier constant 'a_n' for f (x) = $4 - x^2$ in the interval $0 < x < 2$ is_______ a) $-\frac{4}{\pi^2 n^2}$ b) $\frac{4}{\pi n^2}$ c) $\frac{4}{\pi^2 n^2}$ d) $\frac{2}{\pi^2 n^2}$	A
15	If f(x)=sin ax defined in the interval ($-l$, l) then value of 'a_n'is_________ a) $\frac{2}{\pi n^2}$ b) $\frac{1}{n^2}$ c)0 d) $-\frac{1}{n^2}$	C
16	The function $f(x) = \begin{cases} 0 & -2<x<-1 \\ 1+x & -1<x<0 \\ 1-x & 0<x<1 \\ 0 & 1<x<2 \end{cases}$ Is a)an odd function b) an even function c) neither even nor odd function d)cannot be decided	B
17	The Fourier constant 'a_n'for f(x)=x^2 in the interval $-1 \le x \le 1$ is a) $\frac{4(-1)^n}{\pi^2 n^2}$ b) $\frac{4(-1)^{n+1}}{\pi^2 n^2}$ c) $\frac{4}{\pi^2 n^2}$ d) $-\frac{4}{\pi^2 n^2}$	A
18	If $f(x) = \begin{cases} -x, & -\pi < x < 0 \\ x, & 0 < x < \pi \end{cases}$, then f(x) is a) Even function b) odd function c)Neither even nor odd d) none of these	A
19	In fourier series for f(x) = x in the interval $-\pi \le x \le \pi$ which of the following is correct a) $a_0 = \pi, a_n = \frac{1+(-1)^n}{n}, b_n = 0$ b) $a_0 = 0, a_n = 0, b_n = \frac{-2(-1)^n}{n}$ c) $a_0 = \frac{\pi}{2}, a_n = \frac{1+(-1)^n}{n}, b_n = \frac{-2(-1)^n}{n}$ d) $a_0 = 0, a_n = 0, b_n = 0$	B

20	The Fourier constant $'b_n'$for f(x)=2 $-\frac{x^2}{2}$ in the interval $0 \le x \le 2$ is a) $\frac{-2}{n\pi}$ b) $\frac{2}{n\pi}$ c) $\frac{2}{\pi^2 n^2}$ d) none of these.	B
21	If $f(x) = \begin{cases} -\pi, & -\pi < x < 0 \\ x, & 0 < x < \pi \end{cases}$ is discontinuous at x = 0.Then value of f(0) is a) $\pi/2$ b) 0 c) $-\frac{\pi}{2}$ d) π	C
22	The function $f(x) = \begin{cases} 0 & -2<x<-1 \\ 1+x & -1<x<0 \\ 1-x & 0<x<1 \\ 0 & 1<x<2 \end{cases}$ Find a_0 a)2 b) 1/4 c) 1/2 d)0	D
23	Which of the following is the half range sine series of f(x)in the interval, $0 \le x \le \pi$? a)f(x)=$\sum_{n=1}^{\infty} b_n sin\frac{n\pi x}{L}$ b) f(x)=$\frac{a_0}{2}\sum_{n=1}^{\infty} b_n sinnx$ c) f(x)=$\sum_{n=1}^{\infty} b_n sinnx$ d) none of these.	C
24	For the function $f(x) = \begin{cases} -\pi, & 0 < x < \pi \\ x-\pi, & \pi < x < 2\pi \end{cases}$ what is the value of a_0 a) $\frac{1}{2}$ b) $-\frac{\pi}{2}$ c) $\frac{\pi}{2}$ d) π	B
25	If f(x) = $e^x, -1 \le x \le 1$ then constant term of f(x) in fourier expansion is a) $\frac{e}{2}$ b) $\frac{e-e^{-1}}{2}$ c) $\frac{e+e^{-1}}{2}$ d) $\frac{1+e}{2}$	B
26	If $f(x) = \begin{cases} -\pi, & 0 < x < \pi \\ x, & \pi < x < 2\pi \end{cases}$ is discontinuous at x= 0 then value of f(0) is a) $-\pi$ b) 0 c) $-\frac{\pi}{2}$ d) π	C
27	If $\sum y = 42$,n=6.$\sum ycos\theta = -8.5, \sum ycos2\theta$= -1.5,what arethe values of a_0, a_1, a_2 a)7,-2.8,-2.8 b)14,-2.8,1.5 c) 7,-1.5,-2.8 d)none of these	D
28	If f(x) = x^4 in (-1,1) then the fourier coefficient b_n is a)$\frac{24(-1)^n}{n^3\pi^3}$ b) $6\left[\frac{(-1)^n+1}{n^4\pi^4}\right]$ c)0 d)None of these.	C
29	For the function $f(x) = 2x - x^2, 0 \le x \le 3$ the value of b_n is, a) 0 b) $\frac{-9}{n^2\pi^2}$ c) $\frac{3}{n\pi}$ d) none of these	C
30	In the Fourier expansion of the function $f(x) = \frac{1}{2}(\pi - x)$ in the interval $0 \le x \le 2\pi$ the value of a_n is, a) $\frac{1}{n^2\pi}$ b) $\frac{\pi}{n^2}$ c) 0 d) $\frac{(-1)^n}{n^2\pi}$	C

31 If $f(x)=\frac{\pi^2}{2}-\frac{x^2}{4}, -\pi \le x \le \pi$ then values of a_n and b_n are

a) $0, \frac{3}{n\pi}$ b) $0, \frac{(-1)^{n+1}}{n^2}$ c) $\frac{(-1)^{n}+1}{n^2-1}, 0$ d) $\frac{-(-1)^n}{n^2}, 0$

Ans: D

32 The following values of y give the displacement in inches of a certain machine part for the rotation x of the flywheel

x	0	$\pi/6$	$2\pi/6$	$3\pi/6$	$4\pi/6$	$5\pi/6$
Y	0	9.2	14.4	17.8	17.3	11.7

What is the value of a_0

a)11.733 b)14.4 c)23.466 d) none of these

Ans: C

33 If $\sin x = \frac{2}{\pi} - \frac{2}{\pi}\sum_{n=2}^{\infty}\frac{1+(-1)^n}{(n-1)(n+1)}\cos nx$ for $0 \le x \le \pi$ then which of the following correct

a) $\frac{1}{2} = \frac{1}{1\cdot 3}+\frac{1}{3\cdot 5}+\frac{1}{5\cdot 7}+\cdots$ b) $\frac{\pi^2}{2} = \frac{1}{1^2}+\frac{1}{2^2}+\frac{1}{3^2}+\ldots$

c) $\frac{\pi}{4} = 1-\frac{1}{3}+\frac{1}{5}-\frac{1}{7}+\cdots$ d) none of these

Ans: A

34 If $a_0 = \frac{4\pi^2}{3}$, $a_n = \frac{4(-1)^{n+1}}{n^2}$ are the fourier coefficient of f(x) in $-\pi \le x \le \pi$ then which of the following correct

a) f(x)= $\frac{2\pi^2}{3}+\sum_{n=1}^{\infty}\frac{4(-1)^{n+1}}{n^2}\cos\frac{n\pi x}{2}$ b) f(x)= $\frac{4\pi^2}{3}+\sum_{n=1}^{\infty}\frac{4(-1)^{n+1}}{n^2}\sin nx$

c) f(x)= $\frac{2\pi^2}{3}-\sum_{n=1}^{\infty}\frac{4(-1)^{n}}{n^2}\cos nx$ d) none of these

Ans: C

35 If f(x) = x^2, $0 < x < 2$ then in half range cosine series $\frac{a_0}{2}$ is

a) 4 b) 12 c) $\frac{8}{3}$ d) 8

Ans: C

36 For the half range cosine series f(x) = $\left(\frac{\pi-x}{2}\right)^2, 0 \le x \le \pi$, if $a_0 = \frac{\pi^2}{6}, a_n = \frac{1}{n^2}, b_n = 0$, then which of the following statement is correct

a) $\frac{\pi^2}{6}=\frac{1}{1^2}-\frac{1}{2^2}+\frac{1}{3^2}-\frac{1}{4^2}$------ b) $\frac{\pi^2}{8}=\frac{1}{1^2}+\frac{1}{3^2}+\frac{1}{5^2}+\frac{1}{7^2}---$

c) $\frac{\pi^2}{6}=\frac{1}{1^2}+\frac{1}{2^2}+\frac{1}{3^2}+\frac{1}{4^2}$------ d) $\frac{\pi^2}{8}=\frac{1}{1^2}+\frac{1}{3^2}+\frac{1}{5^2}+\frac{1}{7^2}---$

Ans: C

Q.N.	Question	Ans
1	If $\emptyset(a)=\int_0^{\infty}\frac{e^{-x}}{x}(1-e^{-ax})dx, a > -1$ then by DUIS rule, $\frac{d\emptyset}{da}$ is a) $\frac{e^{-x}}{x}(1-e^{-ax})$ b) $\int_0^{\infty}\frac{a}{x}\left(e^{-(a+1)x}\right)dx$ c) $\int_0^{\infty}(e^{-ax})dx$ d) $\int_0^{\infty}\left(e^{-(a+1)x}\right)dx$	D
2	If $\emptyset(a)=\int_0^{1}\frac{x^a-1}{logx}dx, a \ge 0$ then by DUIS rule, $\frac{d\emptyset}{da}$ is a) $\int_0^1\frac{x^a loga}{logx}dx$ b) $\int_0^1\frac{ax^{a-1}}{logx}dx$ c) $\int_0^1 x^a dx$ d) $\frac{x^a-1}{logx}$	C

3	If $\emptyset(\alpha) = \int_0^{\infty} \frac{e^{-x} sin\alpha x}{x} dx$ then by DUIS rule, $\frac{d\emptyset}{d\alpha}$ is a) $\int_0^{\infty} e^{-x} sin\alpha x\, dx$ b) $\int_0^{\infty} e^{-x} cos\alpha x\, dx$ c) $\int_0^{\infty} \frac{\alpha e^{-x} sin\alpha x}{x} dx$ d) $\frac{e^{-x} sin\alpha x}{x}$	B
4	If $\emptyset(a) = \int_0^{\frac{\pi}{2}} \frac{\log(1+asin^2x)}{sin^2x} dx, a > 0$, then by DUIS rule, $\frac{d\emptyset}{da}$ is a) $\int_0^{\frac{\pi}{2}} \frac{2\text{sinxcosx}}{(1+asin^2x)} dx$ b) $\int_0^{\frac{\pi}{2}} \frac{1}{(1+asin^2x)sin^2x} dx$ c) $\int_0^{\frac{\pi}{2}} \frac{1}{1+asin^2x} dx$ d) $\int_0^{\frac{\pi}{2}} \frac{sin^2x}{(1+asin^2x)} dx$	C
5	If $\emptyset(a) = \int_a^{a^2} \log(ax) dx$, then by DUIS rule II, $\frac{d\emptyset}{da}$ is a) $\int_a^{a^2} \frac{\partial}{\partial a} \log(ax)\, dx + 2aloga^3$ b) $\int_a^{a^2} \frac{\partial}{\partial a} \log(ax)\, dx$ c) $\int_a^{a^2} \frac{\partial}{\partial a} \log(ax)\, dx + 2aloga^3 - 2loga$ d) $\int_a^{a^2} \frac{\partial}{\partial a} \log(ax)\, dx - 2aloga^3 + 2loga$	A
6	If $\emptyset(a) = \int_0^{a^2} tan^{-1}\left(\frac{x}{a}\right) dx$, then by DUIS rule II, $\frac{d\emptyset}{da}$ is a) $\int_0^{a^2} \frac{\partial}{\partial a} tan^{-1}\left(\frac{x}{a}\right) dx + 2atan^{-1}a$ b) $\int_0^{a^2} \frac{\partial}{\partial a} tan^{-1}\left(\frac{x}{a}\right) dx$ c) $\int_0^{a^2} \frac{\partial}{\partial a} tan^{-1}\left(\frac{x}{a}\right) dx + a^2tan^{-1}a$ d) $\int_0^{a^2} \frac{\partial}{\partial a} tan^{-1}\left(\frac{x}{a}\right) dx + a^2tan^{-1}a - tan^{-1}\left(\frac{x}{a}\right)$	A
7	IF $I(a)=\int_a^{a^2} \frac{1}{x+a} dx$, then by DUIS rule II, $\frac{dI}{da}$ is a) $\int_a^{a^2} \frac{\partial}{\partial a}\left(\frac{1}{x+a}\right) dx - \frac{1}{a^2+a}(2a) + \frac{1}{2a}$ b) $\int_a^{a^2} \frac{\partial}{\partial a}\left(\frac{1}{x+a}\right) dx + \frac{1}{a^2+a}(2a) - \frac{1}{2a}$ c) $\int_a^{a^2} \frac{\partial}{\partial a}\left(\frac{1}{x+a}\right) dx - \frac{1}{a^2+a}$ d) $\int_a^{a^2} \frac{\partial}{\partial a}\left(\frac{1}{x+a}\right) dx$	B
8	Using DUIS Rule the value of the integral $\emptyset(a) = \int_0^{\infty} \frac{e^{-x}}{x}(1 - e^{-ax})dx, a > -1$, given $\frac{d\emptyset}{da} = \frac{1}{a+1}$ is a)log(a+1) b) $-\frac{1}{(a+1)^2}$ c)log(a+1) + π d) $-\frac{1}{(a+1)^2} + 1$	A
9	Using DUIS Rule the value of the integral $\emptyset(a) = \int_0^{\frac{\pi}{2}} \frac{\log(1+asin^2x)}{sin^2x} dx$ *with* $\frac{d\emptyset}{da} = \frac{\pi}{2}\frac{1}{\sqrt{a+1}}$ is a) $\pi\sqrt{a+1}$ b) $\pi\sqrt{a+1} + \pi$ c) $\pi\sqrt{a+1} - \pi$ d) $3\pi(a+1)^{\frac{3}{2}} - \pi$	C
10	Using DUIS Rule the value of the integral $\emptyset(a) = \int_0^{\infty} \frac{1-\text{cosax}}{x^2} dx$, *with* $\frac{d\emptyset}{da} = \frac{\pi}{2}$ is a) $\frac{\pi}{2}$ b) $\frac{\pi a}{2}$ c) πa d) $\frac{\pi a}{2} + \frac{\pi}{2}$	B
11	If I(a)= $\int_0^1 \frac{x^a - x^b}{logx}$ dx then the value of I(a) is a) log$\left(\frac{a}{b}\right)$ b) log$\left(\frac{a+1}{b+1}\right)$ c) log$\left(\frac{b+1}{a+1}\right)$ d) log$\left(\frac{b}{a}\right)$	B

12	If erf($\sqrt{t}$) $=\frac{2}{\sqrt{\pi}}\int_0^{\sqrt{t}} e^{-u^2}\,du$ then $\frac{d}{dt}$ erf($\sqrt{t}$) is a) $\frac{e^{-t}}{2\sqrt{t}}$ b) $\frac{e^{-t^2}}{\sqrt{\pi t}}$ c) $\frac{e^{-t}}{\sqrt{\pi}}$ d) $\frac{e^{-t}}{\sqrt{\pi t}}$	D
13	$\int_0^t \mathrm{erf}(ax)\,dx + \int_0^t \mathrm{erf\,c}(ax)\,dx = ?$ a) t b) x c) 0 d) $\frac{t^2}{2}$	A
14	If $\frac{d}{dx}$ erf(ax)$=\frac{2ae^{-a^2x^2}}{\sqrt{\pi}}$, the value of $\int_0^t \mathrm{erf}(ax)\,dx$ is a) t erf(at)$+\frac{1}{a\sqrt{\pi}}e^{-a^2t^2} - \frac{1}{a\sqrt{\pi}}$ b) t erf(at)$-\frac{1}{a\sqrt{\pi}}e^{-a^2t^2} - \frac{1}{a\sqrt{\pi}}$ c) erf(at)$+\frac{1}{a\sqrt{\pi}}e^{-a^2t^2} + \frac{1}{a\sqrt{\pi}}$ d) t erf(at)$-\frac{1}{a\sqrt{\pi}}e^{-a^2t^2} + \frac{1}{a\sqrt{\pi}}$	A
15	The integral for "erf(b)-erf(a)" is, a) $\frac{2}{\sqrt{\pi}}\int_a^b e^{-t^2}\,dt$ b) $\sqrt{\frac{2}{\pi}}\int_a^b e^{-t^2}\,dt$ c) $\int_a^b e^{-t^2}\,dt$ d) none of these	A

PAGE NO.
DATE / /

1) The differential equation of all circles touching Y-axis at the origin & centres on X-axis, is

(A) $x^2-y^2 = 2x\left[x+y\frac{dy}{dx}\right]$

(B) $x^2+y^2 = 2x\left[x+y\frac{dy}{dx}\right]$

(C) $x^2+y^2 = 2x\left[x-y\frac{dy}{dx}\right]$

(D) None of these

2) Intigrating factor of $(x^2y-2xy^2)dx-(x^3-3x^2y)dy = 0$

(A) $\frac{1}{x^2y^2}$

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

(C) $\frac{1}{x^2y}$

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

3) If $I = \frac{E}{R}\left[1-e^{-Rt/L}\right]$ then the value of q is

A) $\frac{E}{R}\left[t+\frac{L}{R}e^{-Rt/L}\right]$

B) $\frac{E}{R}\left[t+\frac{R}{L}e^{-Rt/L}\right]$

C) $\frac{E}{R}\left[t-\frac{R}{L}e^{-Rt/L}\right]$

(D) None of these.

4. The curve $r = ae^{m\theta}$

(A) Not passes through the pole

(B) passes through the pole

(C) symmetry about y-axis

(D) None of these

5. The curve $a^2y^2 = x^2(2a-x)(x-a)$ is

(A) Symmetry about y-axis

(B) symmetry about $y=x$

(C) symmetry about x-axis

(D) symmetry about $y=-x$.

6. Tangent at origin to the curve $x^3+y^3 = 3ax$ is

(A) $x=0$

(B) $y=0$

(C) $x=0$, $y=0$

(D) None of these

Q.1) $\int_0^1 \int_0^1 \frac{dx\,dy}{\sqrt{1-x^2}\sqrt{1-y^2}} = \ldots$

a) $\frac{\pi^2}{3}$ b) $\frac{\pi^2}{4}$ ✓ c) π d) 1

Q.2) $\int_0^{2\pi} \int_{a\sin\theta}^{a} r\,d\theta\,dr = \ldots$

a) $\frac{\pi a^2}{2}$ ✓ b) $\frac{\pi}{2}$ c) $\frac{\pi^2 a}{2}$ d) 5

Q.3) $\int_0^1 \int_0^x e^{x+y}\,dx\,dy = \ldots$

a) $\frac{(e-1)^2}{2}$ ✓ b) $\frac{e-1}{2}$ c) $\frac{e}{2}$ d) e

Q.4) After changing the order of integration $I = \int_0^1 \int_{4y}^{4} e^{x^2}\,dx\,dy$, the new limits of x & y are

✓ a) $0 \le x \le 4,\ 0 \le y \le \frac{x}{4}$ b) $4 \le x \le 0,\ \frac{x}{4} \le y \le 0$

c) $0 \le x \le \frac{y}{4},\ 0 \le y \le 4$ d) $0 \le x \le 1,\ 0 \le y \le 4$

Q.5) After changing the order of integration of $I = \int_0^\infty \int_x^\infty \frac{e^{-y}}{y}\,dx\,dy$ the new limits of x & y are

✓ a) $0 \le x \le y\ \ 0 \le y < \infty$ b) $0 \le y \le x,\ 0 \le x < \infty$

c) $0 \le x \le 1\ \ x \le y \le 1$ d) $0 \le x \le 1,\ 0 \le y \le 2$

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Q.1) $\int_0^1 \int_0^1 \frac{dx\,dy}{\sqrt{1-x^2}\,\sqrt{1-y^2}} = \ldots$

a) $\frac{\pi^2}{3}$ b) $\frac{\pi^2}{4}$ ✓ c) π d) 1

Q.2) $\int_0^{\pi} \int_{a\sin\theta}^{a} r\,d\theta\,dr = \ldots$

a) $\frac{\pi a^2}{2}$ ✓ b) $\frac{\pi}{2}$ c) $\frac{\pi^2 a}{2}$ d) 5

Q.3) $\int_0^1 \int_0^x e^{x+y}\,dx\,dy = \ldots$

a) $\frac{(e-1)^2}{2}$ ✓ b) $\frac{e-1}{2}$ c) $\frac{e}{2}$ d) e

Q.4) After changing the order of integration $I = \int_0^1 \int_{4y}^{4} e^{x^2}\,dx\,dy$, the new limits of x & y are

✓ a) $0 \le x \le 4,\ 0 \le y \le \frac{x}{4}$ b) $4 \le x \le 0,\ \frac{x}{4} \le y \le 0$

c) $0 \le x \le \frac{y}{4},\ 0 \le y \le 4$ d) $0 \le x \le 1,\ 0 \le y \le 4$

Q.5) After changing the order of integration of $I = \int_0^{\infty} \int_x^{\infty} \frac{e^{-y}}{y}\,dx\,dy$ the new limits of x & y are

✓ a) $0 \le x \le y\ \ 0 \le y < \infty$ b) $0 \le y \le x,\ 0 \le x < \infty$

c) $0 \le x \le 1\ \ x \le y \le 1$ d) $0 \le x \le 1,\ 0 \le y \le 2$

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