

PREVIEW QUESTION BANK

Module Name : cec24-ma10 Calculus-ENG
Exam Date : 18-May-2024 Batch : 15:00-18:00

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	14272001	<p>What is the value of $\sinh(\ln 2)$?</p> <ol style="list-style-type: none"> 1. $3/2$ 2. $3/4$ 3. $3/8$ 4. 2 <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
Objective Question				
2	14272002	<p>Find the derivative of $\sin^{-1}(x^2)$ with respect to x.</p> <ol style="list-style-type: none"> 1. $\frac{2x}{\sqrt{1-x^4}}$ 2. $\frac{2x}{\sqrt{1-x^2}}$ 3. $\frac{2x}{\sqrt{1+x^2}}$ 4. $\frac{2x}{\sqrt{1+x^4}}$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
Objective Question				
3	14272003	<p>Solve the equation $\frac{dy}{dx} = 2xe^{-y}; x > \sqrt{3}$.</p> <ol style="list-style-type: none"> 1. $y = \ln(x - \sqrt{3})$ 2. $y = \ln(x + \sqrt{3})$ 3. $y = \ln(x^2 - \sqrt{3})$ 4. $y = \ln(x^2 - 3)$ <p>A1 : 1</p> <p>A2 : 2</p>	2.0	0.00

A3 : 3

A4 : 4

Objective Question

4	14272004	<p>The nth derivative of $(ax + b)^{-1}$ is</p> <ol style="list-style-type: none"> $y_n = \frac{(-1)^n a^{n+1} \cdot n!}{(ax + b)^{n+1}}$ $y_n = \frac{(-1)^n a^n \cdot n!}{(ax + b)^n}$ $y_n = \frac{(-1)^n a^n \cdot n!}{(ax + b)^{n+1}}$ $y_n = \frac{(-1)^n a^n \cdot (n + 1)!}{(ax + b)^n}$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

5	14272005	<p>Evaluate $D^n(x^2 e^{3x})$.</p> <ol style="list-style-type: none"> $D^n(x^2 e^{3x}) = 3^{n-2} e^{3x} \left[9x^2 + 6nx + \frac{1}{2}n(n-1) \right]$ $D^n(x^2 e^{3x}) = 3^{n-1} e^{3x} \left[9x^2 + 6nx + \frac{1}{2}n(n-1) \right]$ $D^n(x^2 e^{3x}) = 3^{n-2} e^{3x} \left[9x^2 + 6nx + \frac{1}{2}n(n+1) \right]$ $D^n(x^2 e^{3x}) = 3^{n-1} e^{3x} \left[9x^2 + 6nx + \frac{1}{2}n(n+1) \right]$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

6	14272006	<p>The Taylor's remainder after n terms is.....</p> <ol style="list-style-type: none"> $R_n = \frac{h^n (1-c)^{n-p}}{n! p} f^n(a+ch)$ $R_n = \frac{h^n (1+c)^{n-p}}{(n-1)! p} f^n(a+ch)$ $R_n = \frac{h^n (1-c)^{n-p}}{(n-1)! p} f^n(a+ch)$ $R_n = \frac{h^n (1-c)^n}{(n-1)! p} f^n(a-ch)$ 	2.0	0.00
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A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

7 14272007

2.0 0.00

Match the following

List I	List II
Functions	Expansions
A. $\log(1+x)$	I. $1+x+\frac{x^2}{2!}+\dots$
B. e^x	II. $1-\frac{x^2}{2!}+\frac{x^4}{4!}-\dots$
C. $(1+x)^{-1}$	III. $x-\frac{x^2}{2}+\frac{x^3}{3}-\dots$
D. $\cos x$	IV. $1-x+x^2+\dots$

1. A-III, B-I, C-IV, D-II
2. A-II, B-III, C-IV, D-I
3. A-III, B-I, C-II, D-IV
4. A-II, B-I, C-IV, D-III

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

8 14272008

2.0 0.00

Which are correct statements?

- (A). A curve $y = f(x)$ is concave downwards at $[c, f(c)]$ if $f''(c) < 0$.
- (B). A curve $y = f(x)$ is concave upwards at $[c, f(c)]$ if $f''(c) > 0$.
- (C). A curve $y = f(x)$ has inflexion at $[c, f(c)]$ if $f'(x)$ changes sign as x passes through c .
- (D). If f'' is a continuous function and changes sign as x passes through c , then $f''(c)$ is non zero.
1. (A), (C) and (D) only.
 2. (B), (C) and (D) only.
 3. (A), (B), (C) and (D).
 4. (A), (B) and (C) only.

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

9 14272009

Which one is not a point of inflexion for the curve $(a^2 + x^2)y = a^2x$?

2.0

0.00

1. (0,0)

2. $(a, \frac{a}{2})$ 3. $(\sqrt{3}a, \frac{\sqrt{3}a}{4})$ 4. $(-\sqrt{3}a, \frac{-\sqrt{3}a}{4})$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

10 14272010

Obtain a singular point the curve $(x - 2)^2 = y(y - 1)^2$.

2.0

0.00

1. (1/3, 2)

2. (1,2)

3. (2, 1)

4. (-2, -1)

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

11 14272011

What is the necessary condition for the existence of a double point at any point P(x, y) of a curve $f(x, y) = 0$?

2.0

0.00

1. $f_x = f_y \neq 0$ 2. $f_x = f_y = 0$ 3. $f_x = f_y > 0$ 4. $f_x = f_y < 0$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

12	14272012	Obtain the radius of curvature at the point $(-2a, 2a)$ on the curve $x^2y = a(x^2 + y^2)$	2.0	0.00
		<ol style="list-style-type: none"> 1. $-2a$ 2. $2a$ 3. $-a/2$ 4. $a/2$ 		
		A1 : 1		
		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

13	14272013	The circle of curvature at $(1,1)$ on the curve $x^3 + y^3 = 2xy$ is given by....	2.0	0.00
		<ol style="list-style-type: none"> 1. $(8x + 7)^2 + (8y + 7)^2 = 4$ 2. $(8x - 7)^2 + (8y - 7)^2 = 4$ 3. $(8x + 7)^2 + (8y + 7)^2 = 2$ 4. $(8x - 7)^2 + (8y - 7)^2 = 2$ 		
		A1 : 1		
		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

14	14272014		2.0	0.00
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Among the following which are the asymptotes parallel to co-ordinate axes of the curve $x^2y^2 - a^2(x^2 + y^2) = 0$?

A. $x - 2a = 0$

B. $x + a = 0$

C. $y - a = 0$

D. $y + 2a = 0$

1. A, B, C and D

2. A and D only

3. B and C only

4. B and D only

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

15 14272015

Criticize the paradox $1 - \frac{1}{2} + \frac{1}{3} - \frac{1}{4} + \dots$

1. converges to 0

2. converges to 1

3. converges to 1/2

4. Not convergent

A1 : 1

A2 : 2

A3 : 3

A4 : 4

2.0

0.00

Objective Question

16 14272016

The series $\sum \frac{\sqrt{n}}{\sqrt{n^2+1}} x^n \dots\dots$

1. converges if $x < 1$ and diverges if $x > 1$

2. converges if $x > 1$ and diverges if $x < 1$

3. converges if $x = 1$ and diverges if $x > 1$

4. converges if $x < 1$ and diverges if $x = 1$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

2.0

0.00

Objective Question

17	14272017	<p>If $\sum u_n$ and $\sum v_n$ are two positive term series and there exists a positive integer m such that $\frac{u_n}{u_{n+1}} \geq \frac{v_n}{v_{n+1}}, n \geq m$, then</p> <ol style="list-style-type: none"> $\sum u_n$ and $\sum v_n$ are convergent $\sum v_n$ is divergent if $\sum u_n$ is convergent. $\sum u_n$ is divergent if $\sum v_n$ is convergent $\sum u_n$ is convergent if $\sum v_n$ is convergent <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

18	14272018	<p>If $\sum u_n$ is a positive term series, such that $\lim_{n \rightarrow \infty} (u_n)^{1/n} = L$, then</p> <ol style="list-style-type: none"> $\sum u_n$ converges, if $L < 1$. $\sum u_n$ converges, if $L > 1$. $\sum u_n$ diverges, if $L < 1$. $\sum u_n$ diverges, if $L = 0$. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

19	14272019	<p>For the function $f(x) = \pi + x, -\pi < x < \pi$ what is the Fourier coefficient a_n?</p> <ol style="list-style-type: none"> π 0 $\frac{(-1)^n}{n}$ $2/n$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

20	14272020		2.0	0.00
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Find the Fourier series of $f(x) = 2x + 1, -2 < x < 2$ with period $T=4$.

$$1. 2x + 1 = 1 + \frac{8}{\pi} \sum_{n=1}^{\infty} (-1)^{n+1} \cdot \sin \frac{n\pi x}{2}$$

$$2. 2x + 1 = 1 + \frac{8}{\pi} \sum_{n=1}^{\infty} (-1)^n \cdot \sin \frac{n\pi x}{2}$$

$$3. 2x + 1 = 1 - \frac{8}{\pi} \sum_{n=1}^{\infty} (-1)^n \cdot \cos \frac{n\pi x}{2}$$

$$4. 2x + 1 = 1 - \frac{8}{\pi} \sum_{n=1}^{\infty} (-1)^n \cdot \sin \frac{n\pi x}{2}$$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

21 14272021

If the Fourier series for the function $f(x) = \begin{cases} -\pi, & -\pi < x < 0 \\ \pi, & 0 < x < \pi \end{cases}$ with period $T = 2\pi$ is

$f(x) = \frac{\pi}{4} + \frac{1}{\pi} \sum_{n=1}^{\infty} \left(\frac{(-1)^n - 1}{n^2} \cos nx + \frac{1 - 2(-1)^n}{n} \sin nx \right)$ then the sum of the series $1 + \frac{1}{3^2} + \frac{1}{5^2} + \dots$ is

$$1. \frac{3\pi^2}{8}$$

$$2. \frac{\pi^2}{8}$$

$$3. \frac{\pi^2}{6}$$

$$4. \frac{3\pi^2}{4}$$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

2.0 0.00

Objective Question

22 14272022

Expand the function $f(x)=x$ in $(-2,2)$ as a Fourier series.

$$1. x = \frac{2}{\pi} \sum_{n=1}^{\infty} \frac{1}{n} \cos n\pi x$$

$$2. x = \frac{2}{\pi} \sum_{n=1}^{\infty} \frac{1}{n} \cos \frac{n\pi x}{2}$$

$$3. x = \frac{2}{\pi} \sum_{n=1}^{\infty} \frac{1}{n} \sin n\pi x$$

$$4. x = \frac{2}{\pi} \sum_{n=1}^{\infty} \frac{1}{n} \sin \frac{n\pi x}{2}$$

2.0 0.00

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

23 14272023

Form a differential equation from the relation $y = a \sin x + b \sin x + x \sin x$, where a, b are arbitrary constants.

1. $y'' + 2y = 2 \cos x$
2. $y'' + y = 2 \cos x$
3. $y'' - 2y = 2 \cos x$
4. $y'' - y = 2 \cos x$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

2.0

0.00

Objective Question

24 14272024

What is the integrating factor for the linear equation $(1 + x)y' - xy = 1 - x$?

1. $(1 - x)e^x$
2. $(1 + x)e^x$
3. $(1 - x)e^{-x}$
4. $(1 + x)e^{-x}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

2.0

0.00

Objective Question

25 14272025

Which one is the linear equation corresponding to the Bernoulli's equation $\frac{dy}{dx} + \frac{x}{1-x^2}y = \frac{x}{1-x^2}y^2$?

1. $\frac{dv}{dx} + \frac{x}{1-x^2}v = \frac{x}{1-x^2}$
2. $\frac{dv}{dx} - \frac{x}{1-x^2}v = \frac{x}{1-x^2}$
3. $\frac{dv}{dx} - \frac{2x}{1-x^2}v = \frac{2x}{1-x^2}$
4. $\frac{dv}{dx} + \frac{2x}{1-x^2}v = \frac{-2x}{1-x^2}$

A1 : 1

2.0

0.00

A2 : 2

A3 : 3

A4 : 4

Objective Question

26	14272026	<p>Which one is an exact differential equation?</p> <ol style="list-style-type: none"> $(3x+2y+5)dx+(-2x+3y+7)dy=0$ $(3x-2y+5)dx+(-2x+3y+7)dy=0$ $(3x-2y-5)dx+(2x+3y-7)dy=0$ $(3x+2y-5)dx+(2x+3y+7)dy=0$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

27	14272027	<p>What is the integrating factor of $(x^3 + y^3)dx - xy^2 = 0$?</p> <ol style="list-style-type: none"> $I.F. = \frac{1}{x}$ $I.F. = \frac{1}{x^4}$ $I.F. = \frac{1}{x^2}$ $I.F. = \frac{1}{x^3}$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

28	14272028	<p>What is the orthogonal trajectory of family of hyperbolic curves $y = \frac{c}{x}$?</p> <ol style="list-style-type: none"> $x - y = R$ $x + y = R$ $x^2 + y^2 = R$ $x^2 - y^2 = R$ <p>A1 : 1</p> <p>A2 : 2</p>	2.0	0.00
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A3 : 3

A4 : 4

Objective Question

29	14272029	<p>The solution of $y = 2xp + y^2p^3$ is</p> <ol style="list-style-type: none"> 1. $y^2 = cx + \frac{c^3}{8}$ 2. $y^2 = cx - \frac{c^3}{8}$ 3. $y = cx - \frac{c^3}{8}$ 4. $y = cx + \frac{c^3}{8}$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

30	14272030	<p>For the equation $(D^3 - 8)y = e^x$ write the complementary function of solution</p> <ol style="list-style-type: none"> 1. $(c_1 + c_2x + c_3x^2) e^{2x}$ 2. $C. F. = (c_1 + c_2x + c_3x^2) e^{-2x} + c_3 e^{2x}$ 3. $C. F. = c_1 e^{2x} + e^{-x} [c_2 \cos \sqrt{3}x + c_3 \sin \sqrt{3}x]$ 4. $C. F. = c_1 e^{2x} + e^{-x} [c_2 \cos 3x + c_3 \sin 3x]$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

31	14272031	<p>What is the particular integral of $(D^2 - 4)y = \sin 2x$?</p> <ol style="list-style-type: none"> 1. $P. I. = -\frac{x}{4} \cos 2x$ 2. $P. I. = \frac{x}{4} \cos 2x$ 3. $P. I. = -\frac{x}{2} \cos 4x$ 4. $P. I. = \frac{x}{2} \cos 4x$ <p>A1 : 1</p> <p>A2 : 2</p>	2.0	0.00
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A3 : 3

A4 : 4

Objective Question

32	14272032	<p>If $\frac{1}{x} \sin x$ is a solution of $\frac{d^2y}{dx^2} + \frac{2}{x} \frac{dy}{dx} + y = 0$, then find a second solution.</p> <ol style="list-style-type: none"> 1. $y = A \tan x + B$ 2. $y = A \cot x + B$ 3. $y = A \tan^{-1} x + B$ 4. $y = A \cot^{-1} x + B$ 	2.0	0.00
		A1 : 1		
		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

33	14272033	<p>Find the wronskian of e^x and xe^x.</p> <ol style="list-style-type: none"> 1. e^x 2. e^{-2x} 3. e^{2x} 4. $-e^{2x}$ 	2.0	0.00
		A1 : 1		
		A2 : 2		
		A3 : 3		
		A4 : 4		

Objective Question

34	14272034	<p>What is the solution of Euler Cauchy equation $x^2y'' + xy' - 2y = 0$?</p> <ol style="list-style-type: none"> 1. $y(x) = c_1x^2 + c_2x^{-2}$ 2. $y(x) = c_1e^{\sqrt{2}x} + c_2e^{-\sqrt{2}x}$ 3. $y(x) = c_1x^{\sqrt{2}} + c_2x^{-\sqrt{2}}$ 4. $y(x) = c_1e^{2x} + c_2e^{-2x}$ 	2.0	0.00
		A1 : 1		
		A2 : 2		
		A3 : 3		

A4 : 4

Objective Question

35	14272035	<p>Form the pde by eliminating arbitrary function from $f(z - xy, x^2 + y^2) = 0$</p> <ol style="list-style-type: none"> $y^2p - x^2q = y - x$ $y^2p + x^2q = y + x$ $yp + xq = y^2 + x^2$ $yp - xq = y^2 - x^2$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

36	14272036	<p>Solve the pdes $\frac{\partial z}{\partial x} = 3x - y$ and $\frac{\partial z}{\partial y} = -x + \cos y$ simultaneously.</p> <ol style="list-style-type: none"> $z = \frac{3x^2}{2} - yx + \sin y + c$ $z = \frac{3x^2}{2} + yx - \sin y + c$ $z = \frac{x^2}{3} - yx + \cos y + c$ $z = \frac{x^2}{3} + yx + \cos y + c$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

37	14272037	<p>In method of undetermined coefficients, what trial solution to be chosen for the equation $y'' + 2y' + y = 3e^{-x} + 2\sin 4x$</p> <ol style="list-style-type: none"> $y_p = Ax^2e^{-x} + B\cos 4x + C\sin 4x$ $y_p = Ae^{-x} + B\cos 4x + C\sin 4x$ $y_p = Axe^{-x} + B\cos 4x + C\sin 4x$ $y_p = Ax^2e^{-x} + B\sin 4x$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p>	2.0	0.00
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		A4 : 4		
Objective Question				
38	14272038	<p>Solve Lagrange's pde $p+q=\cos x$.</p> <ol style="list-style-type: none"> 1. $-z+\sin x=f(x+y)$ 2. $z+\cos x=f(x-y)$ 3. $-z+\sin x=f(x-y)$ 4. $-z+\cos x=f(x+y)$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
Objective Question				
39	14272039	<p>For a pde $au_{xx} + bu_{xy} + cu_{yy} + du_x + eu_y + fu = 0$, if $b^2 - 4ac > 0$, then the equation is</p> <ol style="list-style-type: none"> 1. Hyperbolic 2. Elliptic 3. Parabolic 4. Non homogeneous <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
Objective Question				
40	14272040	<p>Find the deflection of a vibrating string of unit length having fixed ends with initial velocity zero and initial deflection $2x^2 - x^3$, using D'Alemberts formula.</p> <ol style="list-style-type: none"> 1. $y = 2(x^2 + x^3) + 2c^2t^2(1 + 3x)$ 2. $y = 2(x^2 + x^3) - 2c^2t^2(1 + 3x)$ 3. $y = 2(x^2 - x^3) + 2c^2t^2(1 - 3x)$ 4. $y = 2(x^2 - x^3) - 2c^2t^2(1 - 3x)$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
Objective Question				

41	14272041	<p>A string is stretched and fastened at two points 1m apart. Motion is started by displacing the string in the form $y = a \sin \pi x$ from which it is released at $t=0$. Find the displacement $y(x,t)$.</p> <ol style="list-style-type: none"> $y = 2a \cos(\pi x/2) \sin(\pi ct/2)$ $y = (a/2) \cos 2\pi x \sin 2\pi ct$ $y = a \cos \pi x \sin \pi ct$ $y = a \sin \pi x \cos \pi ct$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

42	14272042	<p>Among the following which are the possible solutions of 1D heat equation $u_t = c^2 u_{xx}$?</p> <p>(A). $u = (c_1 e^{kx} + c_2 e^{-kx}) c_3 e^{k^2 c^2 t}$</p> <p>(B). $u = (c_1 \cos kx + c_2 \sin kx) c_3 e^{-k^2 c^2 t}$</p> <p>(C). $u = (c_1 \cos kt + c_2 \sin kt) c_3 e^{k^2 c^2 x}$</p> <p>(D). $u = (c_1 x + c_2)(c_3 t + c_4) e^{k^2 c^2 t}$</p> <p>Choose the correct answer from the options given below.</p> <ol style="list-style-type: none"> (A), (B) and (D) only. (A) and (B) only. (C) and (D) only (B), (C) and (D) only. <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

43	14272043	<p>In the steady state the two dimensional heat equation reduces to</p> <ol style="list-style-type: none"> $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = c^2$ $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = 0$ $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2} = \frac{\partial u}{\partial t}$ $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} = \frac{\partial^2 u}{\partial t^2}$ <p>A1 : 1</p>	2.0	0.00
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A2 : 2

A3 : 3

A4 : 4

Objective Question

44 14272044

Obtain $L^{-1}\left\{\frac{4s+15}{16s^2-25}\right\}$

1. $L^{-1}\left\{\frac{4s+15}{16s^2-25}\right\} = \frac{1}{4}\cos\frac{5t}{4} + \frac{3}{4}\sin\frac{5t}{4}$

2. $L^{-1}\left\{\frac{4s+15}{16s^2-25}\right\} = \frac{1}{4}\cosh\frac{5t}{4} + \frac{3}{4}\sinh\frac{5t}{4}$

3. $L^{-1}\left\{\frac{4s+15}{16s^2-25}\right\} = \frac{1}{4}\cos\frac{5t}{4} - \frac{3}{4}\sin\frac{5t}{4}$

4. $L^{-1}\left\{\frac{4s+15}{16s^2-25}\right\} = \frac{1}{4}\cosh\frac{5t}{4} - \frac{3}{16}\sinh\frac{5t}{4}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

2.0

0.00

Objective Question

45 14272045

Use Laplace transform to find the value of $\int_0^{\infty} te^{-2t} \sin t dt$.

1. 4/5

2. 2/25

3. 2/5

4. 4/25

A1 : 1

A2 : 2

A3 : 3

A4 : 4

2.0

0.00

Objective Question

46 14272046

If $L\{f(t)\}=F(s)$ and $f(t)$ is continuous, then what is the Laplace transform of $f'(t)$?

1. $L\{f'(t)\}=sL\{f(t)\}+f(0)$

2. $L\{f'(t)\}=s^2L\{f(t)\}-f(0)$

3. $L\{f'(t)\}=sL\{f(t)\}-f(0)$

4. $L\{f'(t)\}=sL\{f(t)\}-f'(0)$

A1 : 1

A2 : 2

2.0

0.00

A3 : 3

A4 : 4

Objective Question

47	14272047	<p>Find the Laplace transform of the rectangular wave function</p> $f(t) = \begin{cases} 1, & 0 < t < c \\ -1, & c < t < 2c \end{cases}, \text{ where } f(t + 2c) = f(t).$ <ol style="list-style-type: none"> $L\{f(t)\} = \frac{1}{s} \cdot \tan^{-1}\left(\frac{as}{2}\right)$ $L\{f(t)\} = \frac{1}{s} \cdot \tanh\left(\frac{as}{2}\right)$ $L\{f(t)\} = \frac{1}{a} \cdot \tanh\left(\frac{s}{a}\right)$ $L\{f(t)\} = \frac{1}{a} \cdot \tan^{-1}\left(\frac{as}{2}\right)$ <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

48	14272048	<p>If $\delta(t - a)$ denotes the unit impulse function, then what is the value of $\int_0^{\infty} \delta(t - a) dt$?</p> <ol style="list-style-type: none"> 0 a 1/a 1 <p>A1 : 1</p> <p>A2 : 2</p> <p>A3 : 3</p> <p>A4 : 4</p>	2.0	0.00
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Objective Question

49	14272049	<p>Evaluate inverse Laplace transform of $\frac{e^{-2s}}{s-3}$.</p> <ol style="list-style-type: none"> $e^{-3(t+2)} \cdot u(t+2)$ $e^{-2(t-3)} \cdot u(t-3)$ $e^{3(t-2)} \cdot u(t-2)$ $e^{-2(t+3)} \cdot u(t+3)$ <p>A1 : 1</p>	2.0	0.00
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A2 : 2

A3 : 3

A4 : 4

Objective Question

50 14272050

What is the Laplace transform of unit step function $u(t-a)$?

2.0 0.00

1. $\frac{e^{as}}{s}$

2. $\frac{e^{-as}}{s}$

3. $\frac{1}{s}$

4. $\frac{e^{-s}}{as}$

A1 : 1

A2 : 2

A3 : 3

A4 : 4