Select the correct answer

$d\left(\frac{y}{x}\right) =$

a

a) $\frac{xdy+ydx}{x^2}$ b) $\frac{xdy-ydx}{x^2}$ c) $\frac{xdy-ydx}{xy}$ d) $\frac{xdy-ydx}{y^2}$

- a
- b
- c
- d

This is the beginning of the test!

Clear Response

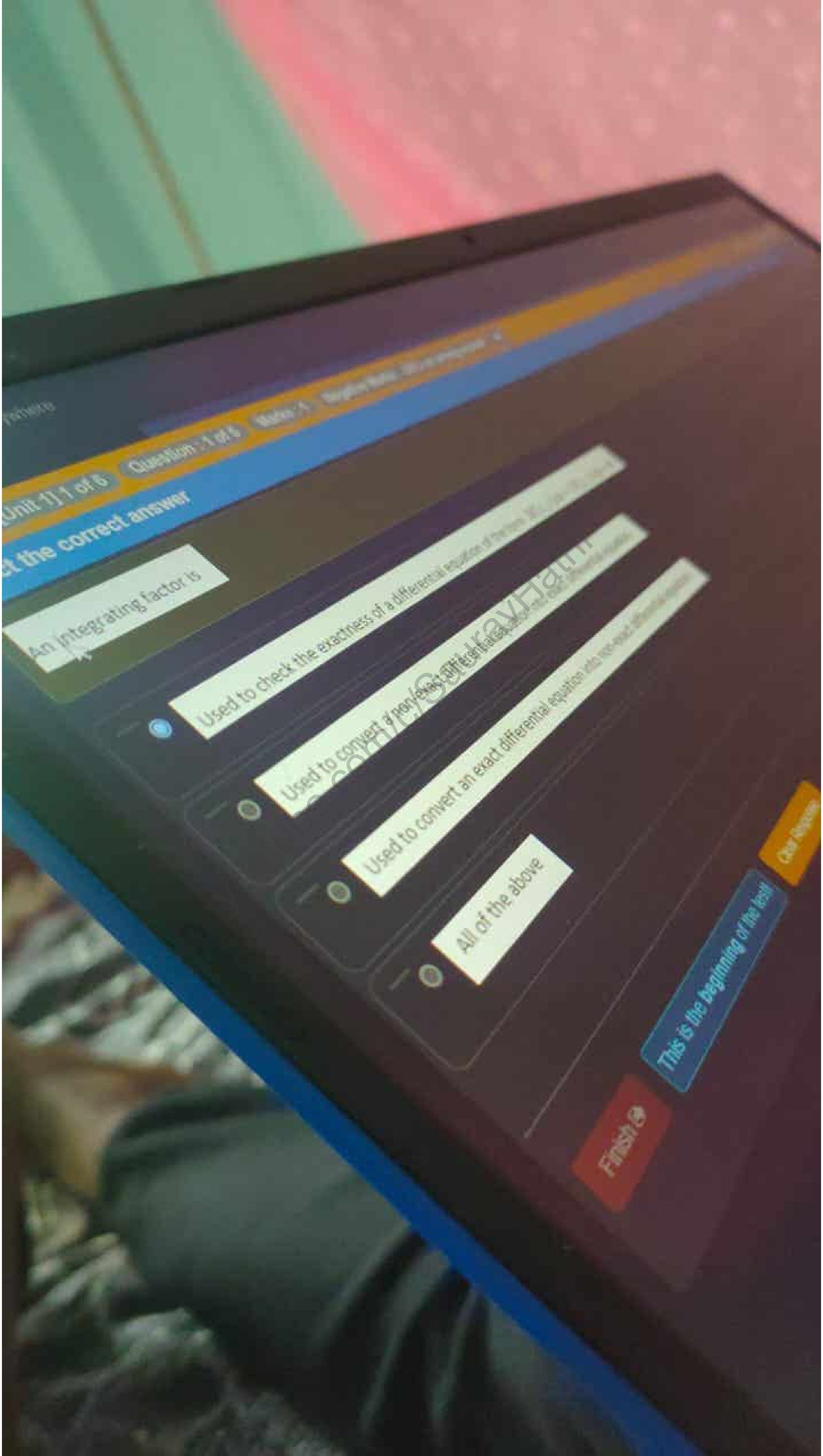
[Unit 1] 1 of 6

Question : 2 of 5

Select the correct answer

The solution of the differential equation $\frac{dy}{dx} = x + \ldots$

- $\frac{x}{2} - C = 0$
- $y^2 - \frac{x^2}{2} - C = 0$
- $y^2 - \frac{x}{2} - C = 0$
- $y - \frac{x^2}{2} - C = 0$


Unit 1] 1 of 6
Question : 1 of 6
Marks : 1
ct the correct answer
An integrating factor is
Used to check the exactness of a differential equation of the form
Used to convert a non-exact differential equation
Used to convert an exact differential equation into
All of the above
This is the beginning of the test!
Finish
Clear Response

Select the correct answer

If $y = \frac{A}{x}$ is the solution of $6ydx + 6xdy = 0$ under y(-1)= 1 then the value of A is

- -1
- -2
- 1
- 2

Finish

Clear Response

Select the correct answer

The general solution of equation $\log(px - y) = p$, where $p = \frac{dy}{dx}$, is given by

a) $y = cx - e^c$ b) $y = cx + \frac{a}{c}$ c) $y = cx - \sin^{-1}c$ d) $(y - cx)^2 = a^2c^2 + b^2$

○ a

○ b

○ c

○ d

Previous Clear Response

Select the correct answer

Integrating Factor of $ydx - xdy + a(x^2 + y^2)dx = 0$ is

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

- a
- b
- c
- d

Clear Response

Section [Unit 1] 1 of 6 Question : 5 of 5 Marks : 1 Negative

Select the correct answer

The degree of the differential equation $\sin\left(\frac{dy}{dx}\right) + y = \log x$ is

- 1
- 2
- 3
- Not Exist

Finish

Clear Response

ection [Unit 1] 1 of 6 | Question : 4 of 5 | Marks : 1 | Negative Marks : -25% on wrong answer

lect the correct answer

When one solve the differential equation $y = 2px + y^2p^3$ by solvable for x process, then the value of p obtained as

- c/y
- cy
- c/x
- cx

Finish | Clear Response

The value of k such that the equation $(xy^2 + kx^2y)dx + (x^3 + yx^2)dy = 0$ be the exact.

- 3
- 4
- 5
- 6

Clear Response

ction [Unit 2] 2 of 6 | Question : 1 of 5 | Marks : 1 | Negative Marks : -25% on wrong

ect the correct answer

e interval in which the differential equation $(1-x^2)y'' - x\sqrt{x}y' + y = 0$ is not Normal

- $(-\infty,\infty)$
- $(2,\infty)$
- $(-1,1)$
- $(2, 5)$

Finish

Clear Response

The value of k such that the equation $(xy^2 + kx^2y)dx + (x^3 + yx^2)dy = 0$ be the exact.

- 3
- 4
- 5
- 6

Clear Response

Section [Unit 1] 1 of 6 Question : 3 of 5 Marks : 1 Negative Marks : -25% on wrong answer

Select the correct answer

The general solution of differential equation $(y-xp)(p-1)=p$ where $p=\frac{dy}{dx}$ is given by

(a) $y=cx+\frac{c}{c-1}$ (b) $y=cx-\frac{c}{c-1}$ (c) $y=c+\frac{cx}{c-1}$ (d) none of these

- a
- b
- c
- d

click next/finish, you will

Section [Unit 1] 1 of 6 | Question : 2 of 5 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

Solution of $ydx-xdy+(1+x^2)dx+x^2\sin y dy=0$ is

(a)-$y+x^2-1-x\cos y=cx$ (b)-$x+y^2-1-x\cos y=cy$ (c)-$y+x^2-x\cos y=cx$ (d)-$x+y^2-x\cos y=cy$

- a
- b
- c
- d

The solution of differential equation $(x + y + 3)dx + (x - y + 2)dy = 0$ is

a) $x^2 - y^2 + 2xy + 6x + 4y = c$

b) $x^2 - y^2 + 2xy = c$

c) $x^2 + y^2 + 2xy = c$

d)) $x^2 + y^2 + 6x = c$

○ a

○ b

○ c

○ d

Clear Response

Section [Unit 1] 1 of 6 | Question : 4 of 5 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

The integrating factor of a homogeneous equation a(x, y) dy+b(x, y) dx=0 is

(a) $\frac{1}{(ax+by)}; (ax + by) \neq 0$

(b) $\frac{1}{(bx+ay)}; (ax - by) \neq 0$

(c) $\frac{1}{(bx+ay)}; (bx + ay) \neq 0$

(d) $\frac{1}{(ax+by)}; (ax - by) \neq 0$

○ a

○ b

○ c

Section [Unit 1] 1 of 6 | Question : 5 of 5 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

The general solution of differential equation $p = \log(px - y)$ where $p = \frac{dy}{dx}$ is given by

(a) $y = cx - e^c$ (b) $y = 2c^2 + cx$ (c) $y = cx + \frac{2}{c}$ (d) none of these

- a
- b
- c
- d

Clear Response

Once you click next/finish, you will

Bathina Se

Section [Unit 2] 2 of 6 | Questio

Select the correct answer

The solution of the dif

(a) $e^x(A\cos 2x + B\sin$

(c) $e^x(A\cos 2x + B\sin$

- a
- b
- c
- d

Section [Unit 2] 2 of 6 | Question : 1 of 5 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

The number of arbitrary constants in the complete primitive of the differential equation $\phi(x, y, \frac{dy}{dx}, \frac{d^3y}{dx^3}) = 0$ is

(a) 1 (b) 2 (c) 3 (d) 4

- a
- b
- c
- d

Clear Response

Once you click next/finish, you will r

Meet – hit-tjtz-pqb

Bathina Sekhar

Section [Unit 2] 2 of 6 Question : 4 of 5

Select the correct answer

The order and degree of the diffe

(a)order=6 and degree=2

(c)order=2 and degree=2

- a
- b
- c
- d

n Anywhere

n [Unit 2] 2 of 6 | Question : 2 of 5 | Marks : 1 | Negative Marks : -25% on

t the correct answer

interval in which the differential equation $(x-2)y''' - 9y' + y = \sin x$ is Normal

- $[2,\infty)$
- $(-3,\infty)$
- $(-\infty,3)$
- $(30,100)$

Finish

Clear Response

What are the characteristic roots of a homogeneous linear DE with constant coefficients having $7 + xe^{3x}$ as its particular solution?

a) 1,3 b) 0,3 c) 0,1,3 d) 0,3,3

- ○ a
- ○ b
- ○ c
- ○ d

Clear Response

If e^{2x} *and* e^{3x} are the solutions of diff. equation $y''+py'+qy=0$ then the value of p and q is

a) $p=-5$ and $q=6$ b) $p=-5$ and $q=-6$ c) $p=5$ and $q=6$ d) $p=5$ and $q=-6$

- a
- b
- c
- d

Clear Response

Section [Unit 2] 2 of 6 | Question : 2 of 5 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

Functions which are linearly independent on any interval I are

(a) x^2, x^3 *and* $6x^2 - x^3$

(b) $x^2 - 1, 3x^2$ *and* $2 - 5x^2$

(c) $1, Sin^2 x$ *and* $\cos^2 x$

(d) $1,$ $Sinx$ *and* $\cos x$

- a
- b
- c
- d

Section [Unit 2] 2 of 6 | Question : 3 of 5 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

If the roots of the auxiliary equation of a differential equation are -2,-4,-5 then its C.F. is written as

- $c_1e^{-2x}+c_2e^{-4x}+c_3e^{-5x}$
- $c_1e^{-2x}+(c_2+c_3)e^{-5x}$
- $c_1e^{-4x}+(c_2+xc_3)e^{-5x}+e^{-2x}$
- None of these

Finish

Clear Response

Let $f_1 = 1,\ f_2 = x,\ f_3 = 1 + x,\ f_4 = x^3$, then the Wronskian $W(f_1, f_2, f_3, f_4) =$

a) 2   b)6x   c) 0   d)3-4x

- a
- b
- c
- d

Finish   Clear Response

The complementary function of $(D^2 - a^2)y = 0$

a) $y = c_1e^{ax} + c_2e^{-ax}$ b) $y = (c_1x + c_2)e^{ax}$ c) $y = c_1\cos ax + c_2\sin ax$ d) None of these

- a
- b
- c
- d

Clear Response

ection [Unit 2] 2 of 6 | Question : 4 of 5 | Marks : 1 | Negative Marks : -25% on wrong

elect the correct answer

he function $f_1(x), f_2(x), \ldots\ldots, f_n(x)$ are said to be linearly independent if there Wronskian is

- Not Zero
- Zero
- One
- Not one

Finish | Clear Response

The functions $x, 1-x, 1-2x$ are

- Linearly dependent
- Linearly independent
- Wronskian is 1
- Wronskian is -1

Finish

Clear Response

Negative Marks : -25% on wrong answer

Select the correct answer

The trial solution of corresponding to $2e^{3x}\sin(2x+4)\,is$

(a) $Ae^{3x}sin(2x+4)$

(b) $2Ae^{3x}sin(2x+4)$

(c) $Ae^{3x}sin(2x+4) + Ae^{3x}cos(2x+4)$

(d) $2Ae^{3x}sin(2x+4) + 2Ae^{3x}cos(2x+4)$

- a
- b
- c
- d

Clear Response

The interval in which the differential equation $2y''+3y'+y=\log x$ is normal

a) $(-\infty,0)$ b) $(0,\infty)$ c) $(-\infty,\infty)$ d) None of these

○ a

○ b

○ c

○ d

Clear Response

Section [Unit 3] 3 of 6 | Question : 4 of 5 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

On putting x=e^z, the transformed differential equation of $x^2\frac{d^2y}{dx^2}+x\frac{dy}{dx}+y=x$ is

(a) $\frac{d^2y}{dz^2}+y=e^z$ (b) $\frac{d^2y}{dz^2}-y=e^z$ (c) $\frac{dy}{dz}+y=e^z$ (d) $\frac{dy}{dz}-y=e^{z^2}$

- a
- b
- c
- d

Section [Unit 3] 3 of 6 | Question : 1 of 5 | Ma

Select the correct answer

$P.I. = \frac{1}{f(D)} x^2 e^{2x}$ is equal to

- real part of $e^{ix} \frac{1}{f(D+i)} x^2$
- Imaginary part of $e^{ix} \frac{1}{f(D+i)} x^2$
- real part of $\frac{1}{f(D)} e^{ix} x^2$
- None of these

Finish

Clear Response

Particular Integral of diff. equation $x^2y''+xy'-6y=\sin(\ln x)$ is

a) $-\sin(\ln x)$ b) $-\frac{1}{7}\cos(\ln x)$ c) $-\frac{1}{7}\sin(\ln x)$ d) None of these

- a
- b
- c
- d

Finish ▸ Clear Response

The P.I. of the differential equation $(D^2+4)y = \cos 2x$, is

$\frac{x}{4}\cos 2x$

$\frac{x}{4}\sin 2x$

$-\frac{x}{4}\cos 2x$

$-\frac{x}{4}\sin 2x$

Finish

Clear Response

Section [Unit 4] 4 of 6 | Question : 3 of 10 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

A tightly stretched string with fixed end points x=0 and x=l is initially at rest in the equilibrium position. Then the boundary conditions are

- $y = f(x)$ at $x = 0$ and $x = l$
- $y = 0$ at $x = 0$ and $x = l$
- cannot say
- none of these

Once you click next/finish,

Section [Unit 4] 4 of 6 | Question : 1 of 10 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

The two dimensional steady state heat flow equation is represented by

- $\frac{\partial^2 u}{\partial x^2}+\frac{\partial^2 u}{\partial t^2}=0$
- $\frac{\partial^2 u}{\partial x^2}=\frac{\partial^2 u}{\partial y^2}$
- $\frac{\partial^2 u}{\partial x^2}=\frac{\partial u}{\partial y}$
- $\frac{\partial^2 u}{\partial x^2}+\frac{\partial^2 u}{\partial y^2}=0$

Finish | Clear Response

Once you click next/finish, yo

Select the correct answer

The P.I. of the differential equation $(D-4)^{6}y=5e^{4x}$ is

- $-\dfrac{5x^{6}e^{4x}}{120}$
- $\dfrac{5x^{5}e^{4x}}{120}$
- $\dfrac{5x^{6}e^{4x}}{720}$
- $-\dfrac{5x^{5}e^{4x}}{720}$

Finish

Clear Response

Section [Unit 4] 4 of 6 | Question : 6 of 10 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

The equation $\frac{\partial u}{\partial t} = c^2 \frac{\partial^2 u}{\partial x^2}$ with $u(0,t) = u(l,t) = 0,\ u(x,0) = f(x)$ is

- heat equation when ends of bar are kept at temperature zero
- heat equation when ends of bar have varied temperature
- heat equation when bar length is infinite
- none of these

Clear Response

Select the correct answer

$$\frac{1}{(D-a)}\phi(x) =$$

- $e^{ax}\int e^{-ax}\phi(x)dx$
- $e^{-ax}\int e^{ax}\phi(x)dx$
- $e^{ax}\int e^{ax}\phi(x)dx$
- None of these

Finish

Clear Response

Section [Unit 3] 3 of 6 | Question : 3 of 5 | Marks : 1 | Negative Marks : 25% on wrong answer

Select the correct answer

Solving by variation of parameters $y''+y=\sec x$, the value of wronskian is

a) 1 b) 2 c) -2 d) none of these

- a
- b
- c
- d

Clear Response

t the correct answer

If $u(x,t)$ is the D' Alembert solution of the wave equation $\frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 u}{\partial t^2}$ with the condition $u(x,0) = x$, $\frac{\partial u(x,0)}{\partial t} = 0$ then $u =$

- x
- x^2
- x^3
- x^4

Finish

Clear Response

ct the correct answer

If The solution of $\frac{\partial^2 u}{\partial x^2} C^2 = \frac{\partial^2 u}{\partial t^2}$; $u(0,t) = 0$, $u(1,t) = 0$, $\left(\frac{\partial u}{\partial t}\right)_{t=0} = 0$; $u(x,0) = x$

Is $u(x,t) = \sum_n b_n Sin(n\pi x) Cos(n\pi ct)$ then the value of b_n is given by

- $b_n = \frac{1}{2}\int_0^1 \sin(n\pi x)dx$
- $b_n = \int_0^1 x \sin(n\pi x)dx$
- $b_n = \frac{1}{2}\int_0^2 x^2 \sin(n\pi x)dx$
- None of these

Finish | Clear Response

If $f(D)y = xe^{2x}$ then its particular integral is given by

a) $x\frac{1}{f(D+2)}e^{2x}$ b) $e^{2x}\frac{1}{f(D+2)}x$ c) $x\frac{1}{f(D-2)}e^{2x}$ d) none of these

- a
- b
- c
- d

Select the correct answer

Which of the following represents the solution of $\frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 u}{\partial t^2}$;

$u(0,t) = 0;\ u(1,t) = 0;\ \left(\frac{\partial u}{\partial t}\right)_{t=0} = 0,\ u(x,0) = f(x)$

- $u(x,t) = \sum_n b_n Sin(n\pi x) e^{-c^2\pi^2 t}$
- $u(x,t) = \sum_n b_n Sin(n\pi x) e^{c^2\pi^2 t}$
- $u(x,t) = \sum_n b_n Sin\left(\frac{n\pi ct}{L}\right) Cos\left(\frac{n\pi x}{L}\right)$
- $u(x,t) = \sum_n b_n Sin\left(\frac{n\pi ct}{L}\right)$

Finish

Clear Response

Select the correct answer

The P.D.E. corresponding to the curve

$z = a\log\left\{\frac{b(y-1)}{1-x}\right\}$, where a and b are arbitrary constants i

- $p(1+x)+q(1-y)=0$
- $p(1-x)+q(1+y)=0$
- $p(1+x)+q(1+y)=0$
- $p(1-x)+q(1-y)=0$

$$\frac{\partial^2 u}{\partial t^2} = c^2 \frac{\partial^2 u}{\partial x^2}$$ represents the equation for

- Heat flow of a thin rod
- Motion of a projectile in a gravitational fie
- Oscillation of a simple pendulum
- Vibration of a stretched string

Finish

Clear Response

ect the correct answer

The P.D.E. corresponding to
$x^2 + y^2 + (z-a)^2 = c^2$; where a and c are arbitrary constants is

- $yp - xq = 0$
- $yp + xq = 0$
- $xp - yq = 0$
- $py + qx = 0$

Finish

Clear Response

Section [Unit 5] 5 of 6 | Question : 3 of 10 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

The directional derivative of the surface $f(x, y, z) = x + y + z$ in the direction of negative z-axis is

- 1
- -1
- $(\hat{i} + \hat{j} + \hat{k})(-1)$
- $(\hat{i} + \hat{j} + \hat{k})$

Clear Response

Once you click next/finish, you

The partial differential equation $yu_{xx} + 2xu_{xy} + yu_{yy} = 0$ is Hyperbolic if

(a) $x^2 > y^2$ (b) $x^2 = y^2$ (c) $x^2 < y^2$ (d) none of these

- a
- b
- c
- d

Previous Clear Response

ection [Unit 5] 5 of 6 | Question : 4 of 10 | Marks : 1 | Negative Marks : -25% on wrong

elect the correct answer

The vector that gives the direction of maximum rate of increase where $f = 3x^2 + y^2$ at (0, 1) is

(a) $6\hat{i} + 2\hat{j}$ (b) $6\hat{i}$ (c) $2\hat{j}$ (d) $6\hat{i} - 2\hat{j}$

- a
- b
- c
- d

Finish | Clear Response

In wave equation $5\frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 u}{\partial t^2}$, the value of c^2 is

a) $\pm\sqrt{5}$ b) 5 c) $\frac{1}{5}$ d) $\pm\frac{1}{\sqrt{5}}$

- ○ a
- ○ b
- ○ c
- ○ d

Flag it Clear Response

Section [Unit 4] 4 of 6 Question : 7 of 10 Marks : 1 Negative Marks : -25% on wr

elect the correct answer

The partial differential equation formed by eliminating arbitrary functions the equation $z = f(x^2 - y^2)$ is

- $px + qy = 0$
- $pxqy = 0$
- $py + qx = 0$
- $\frac{x}{y} = q$

Finish

Clear Response

Question : 7 of 10 Marks : 1 Negative Marks : -25% on wrong answer

Select the correct answer

A unit normal vector to the surface $x^2+3y^2+2z^2 = 6$ at (2,0,1) is

- $\frac{i+k}{\sqrt{2}}$
- $-\frac{i+j}{\sqrt{2}}$
- $\frac{i+j+k}{\sqrt{3}}$
- $-\frac{i+j+k}{\sqrt{3}}$

Section [Unit 5] 5 of 6 | Question : 4 of 10 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

If $\phi = 3x^2y$ and $\psi = xz^2 - 2y$ then $grad\ \phi . grad\ \psi$ is

- $6xyz^2 - 6x^2$
- $6xyz^2 - 6x$
- $6xyz^2 - x^2$
- $xyz^2 - 6x^2$

Section [Unit 6] 6 of 6 | Question : 1 of 10 | Marks : 1 | Negative Marks : -25% on wrong answer

Select the correct answer

The value of $\int_C \vec{F} \cdot d\vec{r}$ where $\vec{F} = y\hat{i}$ and $C : y = 3x^2$ from $0 \le x \le 1$ is

- $\frac{1}{3}$
- 1
- 3
- none of these

Clear Response

Partial differential equation of $z = f(ax + y)$ after eliminating function 'f' will be

a) $ap = q$ b) $aq = p$ c) $z = pq$ d) $px + qy = 0$

- a
- b
- c
- d

Finish >> Clear Response