# VIRTUAL UNIVERSITY OF PAKISTAN

A Good Education is a Foundation For a Better Future
CORRECT ANSWER SOLVED BY HADI
EMAIL-hadirajputofficial@gmail.com
WHATSAPP& CALL-03087122922
TEAM HADI(VU LAHORE)

## MID TERM PAST PAPER

We Deal All Kind of VU Project
(PHP, .NET,ANDROID,PYTHON)

**MADE AND SOLVED BY HADI**

WARNING: Team HADI is not responsible for any mistake or wrong answer. All students reading and using this document may check and confirm the answers at their own.

**WhatsApp:03087122922**

**FACEBOOK ID: https://www.facebook.com/hadipastpapers/**

Best of luck!

PAST PAPER

Question No : 1 of 26 Marks: 1 (Budgeted Time 1 Min)

The solutions $y_1 = c_1$, $y_2 = c_2 \cos x$, $y_3 = c_3 \sin x$ of a Differential Equation are

Answer ( Please select your correct option )

- Linearly independent

correct answer solve
by hadi

- Linearly dependent
- both of the other options

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 2 of 26 Marks: 1 (Budgeted Time 1 Min)

Wronskian of the functions $y_1(x) = 1$, $y_2(x) = \text{Cos}x$, $y_3(x) = \text{Sin}x$ is

Answer ( Please select your correct option )

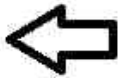
- 0
- 1
- 2
- 3

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 3 of 26 Marks: 1 (Budgeted Time 1 Min)

The value of amplitude in the solution X=7Sin (3t+ 2.45) is

Answer ( Please select your correct option )

- 7  correct answer solve by hadi
- 3
- 2.45
- 1

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 4 of 26 Marks: 1 (Budgeted Time 1 Min)

The order of the differential equation $(\frac{du}{dt})^{\frac{1}{3}} = \frac{1}{u}$ is

Answer ( Please select your correct option )

1

correct answer solve
by hadi

2

3

4

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 5 of 26 Marks: 1 (Budgeted Time 1 Min)

The solution of the differential equation $\frac{dy}{dx} = \tan x$ is ----------

Answer ( Please select your correct option )

- $y = \ln|\sin x| + c$
- $y = \ln|\sec x| + c$
- $y = \ln|\operatorname{cosec} x| + c$ ⇦ correct answer solve by hadi
- $y = \ln|\cos x| + c$

MADE BY HADI

Question No : 6 of 26 Marks: 1 (Budgeted Time 1 Min)

A differential equation $M(x, y)\,dx + N(x, y)\,dy = 0$ is said to be an exact if -----.

Answer ( Please select your correct option )

- $\frac{\partial M}{\partial x} = \frac{\partial N}{\partial y}$
- $\frac{\partial M}{\partial y} \neq \frac{\partial N}{\partial x}$
- $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$ ⇦
- $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial y}$

correct answer solve
by hadi

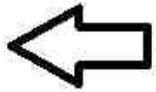
MADE BY HADI

Question No : 7 of 26 Marks: 1 (Budgeted Time 1 Min)

The differential equation $(x^2 - 2x + 2y^2)\,dx + 2xy\,dy = 0$ is a/an -----differential equation.

Answer ( Please select your correct option )

- Exact
- Non-exact
- Homogenous
- Separable



correct answer solve
by hadi

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 8 of 26 Marks: 1 (Budgeted Time 1 Min)

For a 1st order linear differential equation $\frac{dy}{dt} - \frac{1}{t}y = 2t^2$; the integarating factor will be -----.

Answer ( Please select your correct option )

- $\mu = -\frac{1}{t}$
- $\mu = \frac{1}{t}$ ⇦ correct answer solve by hadi
- $\mu = t$
- $\mu = 2t$

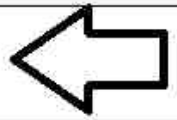
MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 9 of 26 Marks: 1 (Budgeted Time 1 Min)

A differential equation $\frac{dy}{dx} + p(x)y = q(x)y^n$ $for\ n \neq 0,1$ is called a/an ----.

Answer ( Please select your correct option )

- Non-Exact differential equation
- Linear differential equation
- Bernoulli equation
- Exact differential equation



correct answer solve

MADE BY HADI

Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 10 of 26 Marks: 1 (Budgeted Time 1 Min)

In order to change the Bernoulli Equation

$$\frac{dy}{dx} + p(x)y = q(x)y^n$$

into linear differential equation, we choose ----.

Answer ( Please select your correct option )

- $v = y^{n-1}$
- $v = y^{1-n}$ ⇦ correct answer solve by hadi
- $v = y^n$
- $v = y'$

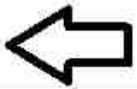
MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 11 of 26 Marks: 1 (Budgeted Time 1 Min)

To convert the non-homogeneous differential equation $\frac{dy}{dx} = \frac{a_1x + b_1y + c_1}{a_2x + b_2y + c_2}$ into separable form, if $\frac{a_1}{a_2} = \frac{b_1}{b_2}$, then we use the substitution-----.

Answer ( Please select your correct option )

- $x = X + h$
- $y = Y + h$
- $z = a_1x + b_1y$
- $z = Y + X$



MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 12 of 26 Marks: 1 (Budgeted Time 1 Min)

In exponential model for the population growth $P(t) = P_0 e^{kt}$ *If* $k > 0$, *then* $\lim_{t \to \infty} P(t) = - - -$.

Answer ( Please select your correct option )

- ∞ ⇦ correct answer solve by hadi
- $-\infty$
- 0
- 1

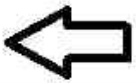
MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 13 of 26 Marks: 1 (Budgeted Time 1 Min)

The constant solutions of the logistic equation $\frac{dP}{dt} = P(a - bP)$ are-----.

Answer ( Please select your correct option )

- P=0, P= b/a
- P=0, P=a/b
- P=a/b, P=b/a
- P=0,P=0



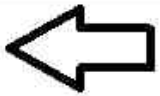
correct answer solve
by hadi

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 14 of 26 Marks: 1 (Budgeted Time 1 Min)

The orthogonal trajectory to the family of curves $3x + 4y = c$ is------.

Answer ( Please select your correct option )

- $y = 2x$
- $y - x = c$
- $4x - 3y = c$ 
- $4x + 3y = c$

correct answer solve
by hadi

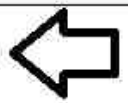
MADE BY HADI

Question No : 15 of 26 Marks: 1 (Budgeted Time 1 Min)

If the tangent lines of two curves are perpendicular at their point of intersection then both the curves are------

Answer ( Please select your correct option )

- Non-intersecting curves
- Parallel curves
- Orthogonal curves
- Intersecting curves



correct answer solve
by hadi

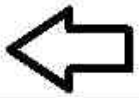
MADE BY HADI

Question No : 16 of 26 Marks: 1 (Budgeted Time 1 Min)

If initial amount of a radioactive isotope is 100g. What will be the amount at the end of 30 days such that K=0.043?

Answer ( Please select your correct option )

- 371.415
- 380.560
- 363.279
- 360.351



correct answer solve
by hadi

MADE BY HADI

Question No : 17 of 26 Marks: 1 (Budgeted Time 1 Min)

If $y = 1 + 6x^2 - 7x^3$ , then which of the following is true for it ?

Answer ( Please select your correct option )

- Its annihilator operator is $D$.
- Its annihilator operator is $D^2$.
- Its annihilator operator is $D^3$.
- Its annihilator operator is $D^4$. ⇦ correct answer solve by hadi

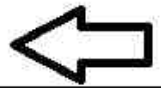
MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 18 of 26 Marks: 1 (Budgeted Time 1 Min)

If $y = e^{-6x}$, then which of the following is the most accurate option?

Answer ( Please select your correct option )

- The annihilator operator of $y = e^{-6x}$ is $(D-6)^2$.
- The annihilator operator of $y = e^{-6x}$ is $(D-6)^3$.
- The annihilator operator of $y = e^{-6x}$ is $(D-6)$.
- The annihilator operator of $y = e^{-6x}$ is $(D+6)$.



correct answer solve by hadi

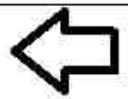
MADE BY HA

Question No : 19 of 26 Marks: 1 (Budgeted Time 1 Min)

If $y_1 = x$ and $y_2 = xe^x$ are the first and second solution of $x^2\frac{d^2y}{dx^2} - x(x+2)\frac{dy}{dx} + (x+2)y = 0$ on $(0,\infty)$, then which of the following is the most accurate option?

Answer ( Please select your correct option )

- $y_1 = x$ and $y_2 = xe^x$ may or may not be linearly dependent.
- $y_1 = x$ and $y_2 = xe^x$ must be linearly independent.
- $y_1 = x$ and $y_2 = xe^x$ may or may not be linearly independent.
- $y_1 = x$ and $y_2 = xe^x$ must be linearly dependent.



correct answer solve
by hadi

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 20 of 26 Marks: 1 (Budgeted Time 1 Min)

If $y_2 = x^3$ is the second solution of $x^2\frac{d^2y}{dx^2} - x\frac{dy}{dx} - 3y = 0$ , then which of the following is the most accurate option?

Answer ( Please select your correct option )

- The first solution say $y_1$ must be non-trivial on the indicated interval.
- The first solution say $y_1$ can be trivial on the indicated interval. ⇦ correct answer solve by hadi
- The first solution say $y_1$ must be discontinuous on the indicated interval.
- The first solution say $y_1$ may or may not be continuous on the indicated interval.

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 21 of 26 Marks: 2 (Budgeted Time 4 Min)

Find the order of the homogenous equation obtained from the following non-homogenous differential equation

$y'' + 4y' + 3y = 4x^2 + 5$ ?

Answer ( Please click here to Add Answer )

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 22 of 26 Marks: 2 (Budgeted Time 4 Min)

If half-time life (T) of a radioative isotope is 5 days, then find k.

Answer ( Please click here to Add Answer )

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 23 of 26 Marks: 3 (Budgeted Time 6 Min)

Determine the annihilator operator of the general solution of the following homogeneous linear first order differential equation:

$$\frac{dy}{dx} - 5y = 0$$

Answer ( Please click here to Add Answer )

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 24 of 26 Marks: 3 (Budgeted Time 6 Min)

If $y_1(x) = e^x$ is the first solution of $\frac{d^2y}{dx^2} + 2\frac{dy}{dx} - 3y = 0$, then construct its second solution using $y_2(x) = y_1(x)\int \frac{e^{-\int P(x)dx}}{y_1^2(x)}dx$.

**Note:** where $P(x)$ is a coefficient of the first derivative involving in the above given differential equation.

Answer ( Please click here to Add Answer )

MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 25 of 26 Marks: 5 (Budgeted Time 10 Min)

**Find period of vibration of the solution of a simple harmonic motion?**

Answer ( Please click here to Add Answer )

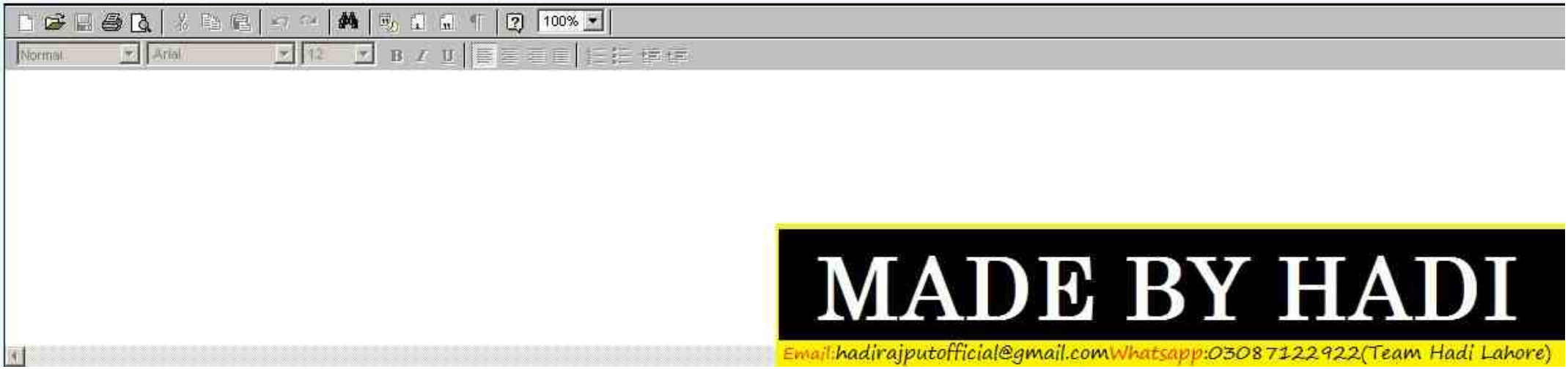
MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)

Question No : 26 of 26 Marks: 5 (Budgeted Time 10 Min)

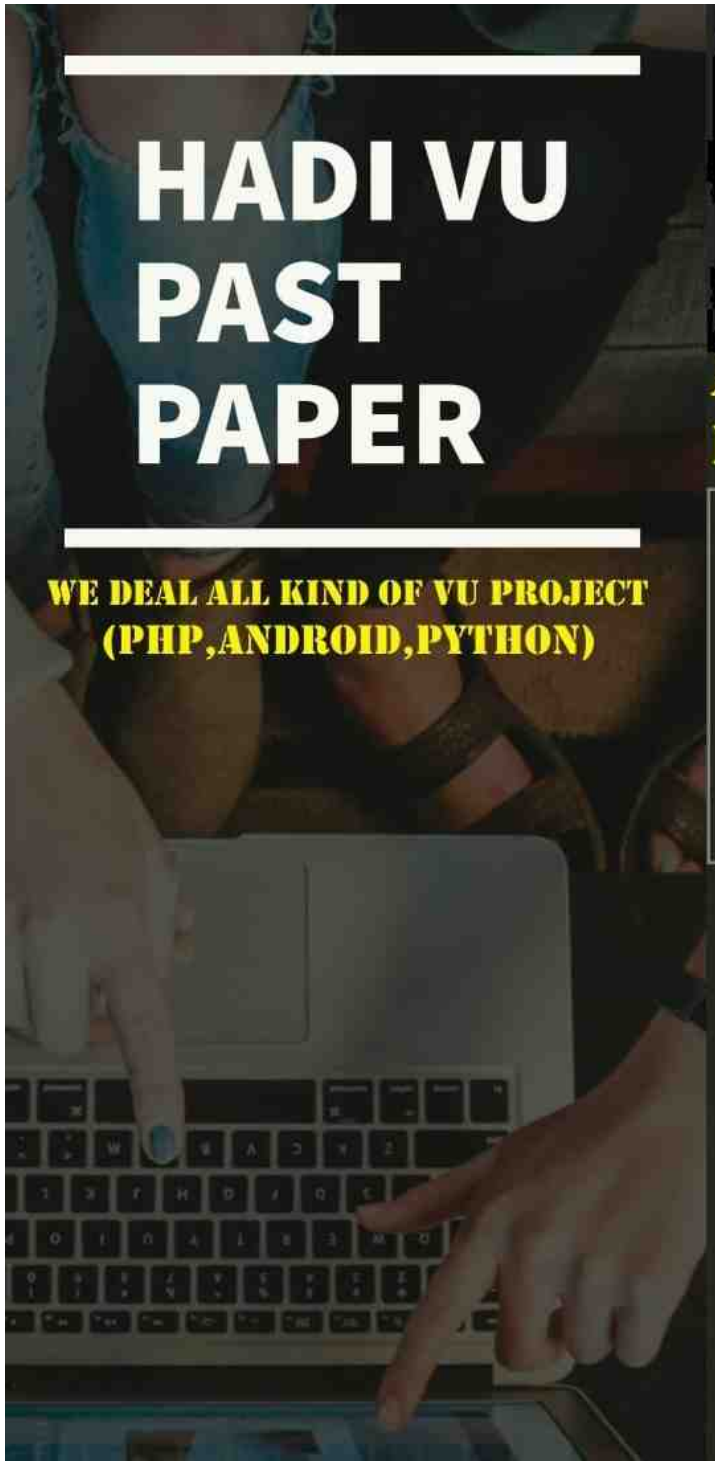
Using Newton's Law of Cooling with initial condition $T(o)=T_0$ and if temperatures at time $t_1$ and $t_2$ are known then show that

$$\frac{T(t_1)-T_m}{T(t_2)-T_m}=e^{k(t_1-t_2)}$$

Answer ( Please click here to Add Answer )




MADE BY HADI
Email:hadirajputofficial@gmail.comWhatsapp:03087122922(Team Hadi Lahore)



# HADI VU PAST PAPER

WE DEAL ALL KIND OF VU PROJECT
(PHP,ANDROID,PYTHON)

# DEAR STUDENTS

ARE YOU LOOKING
FOR ASSISTANCE

1) ASSIGNMENTS
2) QUIZZES
3) GDB
4) GRAND QUIZZES

We Provide,You Solution of VU Academic Activities include Assignments, Quizzes,GDBs,Grand Quizze If You Need Help in Services Kindly inform us.

**TEAM HADI**
**(VU LAHORE)**

**TEAM HADI**
(VU LAHORE)

HADI TECH

**#PAID_TASK**

**CONTACT US**

CALL & WHATSAPP

**0308-7122922**