MTH401 Midterm Papers 2011 - Differential Equations - Subjective Questions

MTH401 - Differential Equations Midterm Papers 2011
www.vuzs.info

Paper 1:-

Question No 1: Define cycle of a vibrating body (2)

Question No 2: Construct the auxiliary equation of the following differential equation

3 d^2/dx^2 - 4 dy/dx = 0

www.vuzs.info

Question No 3: Solve the following intial value problem

(Integral sign) dT/ T-Tm = (integral sign) K(dt), T(0) = T0 (http://www.vuzs.info/old-papers.html)

Question No 4: Factorize the differential equation $D^4 – 8d^2 + 16$ if possible

Question No 5: Find the wronsktin of the differential equation

Y``` -2y``-18y = 6 + 4^{-t} using variation of parameter and the root of the auxiliary equation is m1 = -3 , m2 = -1 , (http://www.vuzs.info/old-papers.html) m3 = 6?

Question No 6: A radioactive isotope has a half-life of 16 days we have 30 g at the end of 30days, how much radio isotope was initially present?

The solution of the IVP (initial value Problem) is given by A (T) = A0 e^{kt} , where K = Ln2/ 16

Paper 2:-

Question No. 1) Define super position principle of particular solution non Homogeneous Linear deferential equation?
Question No. 2) If a mass weighing15lb stretches a spring 3ft then fid K using hook's law? vuzs.info
Question No. 3) what is an auxiliary equation of a Homogeneous differential equation .also give its two examples.
Question No. 4) what is the general solution of deferential equation?
Question No. 5) Take a deferential equation
2
2 0
d y dy
a b cy
dx dx
+ + = we take its exponential solution
mx y = e , by putting the above solution we get equation ( ) 2 0 mx e am + bm+ c = . What will be its general solution if roots are distinct real roots?
Question No. 6) Find the complementary solution for the equation ( ) 2 3 2 1 x y¢¢ ? y¢ + = x + e

Paper 3:-

MTH401 Q.No.1) Define super position principle of particular solution non Homogeneous Linear deferential equation?
MTH401 Q.NO.2) If a mass weighing15lb stretches a spring 3ft then fid K using hook's law? vuzs
MTH401 Q.No.3) what is an auxiliary equation of a Homogeneous differential equation .also give its two examples.
(http://www.vuzs.info)

Paper 4:-

Q.1. write all the forms of g(x) in the method of undetermined coefficients where g(x) is rght hand side of Non-homogeneous linear differential equation ?

Q. 2. Deduce the special use of logistic Equation "Epidemic Spread"? www.vuzs.info

Q. 3. what will be the auxiliary Equation of 2nd order Homogeneous Linear Differential equation by taking solution of exponential form y''-2y'+y=et/t2+1

Q. 4. find the auxiliary equation for the differential equation (http://www.vuzs.info)
y'''-2y''-21y'-18y=3+4e-t

Q. 5. Define general linear equation of order n ?