Roll No..... Total No. of Question : 05
Total No. of Printed Pages : 02

Code No. : B-421(A)

Annual Examination - 2017

BCA-III

BCA-301

Paper-II

DIFFERENTIAL EQUATIONS AND FOURIER SERIES

Max.Marks : 50

Time : 3 Hrs. **Min.Marks : 20**

Note : Attempt any two parts from each question. All questions carry equal marks.

Unit-I

Q-1. (a) Solve .

(b) Solve .

(c) Solve $x = y + p^2$

Unit-II

Q-2. (a) Find the orthogonal trajectories of the family of curves .

(b) Solve $\frac{d^4y}{dx^4} - m^4 y = 0$.

(c) Solve

Unit-III

Q-3. (a) Solve $xzp + yzq = xy$.

(b) Solve .

(c) Solve $\left(D^2 + 3DD' + 2D'^2\right) z = x + y$

P.T.O.

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Q-1. (a) Solve $x^2 y dx - \left(x^3 + y^3\right) dy = 0$.

(b) Solve .

Unit-II

Q-2. (a) Find the orthogonal trajectories of the family of curves .

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P.T.O.

Unit-IV

Q-4. (a) Find the fourier series of the function in .

(b) Construct the fourier series for the function given by

and $f(x+2\pi)=f(x)$

(c) Obtain the fourier series for $f(x)=e^{-x}$ in the interval $0<x<2\pi$.

Unit-V

Q-5. (a) Explain Gibbs phenomenon regarding behaviour of the fourier series.

(b) Find the temperature in a slab whose ends and are kept at temperature zero and whose inital temperature given by

(c) Find the deflection $u(x,t)$ of the vibrating string (length ends fixed, and $c^2=1$) corresponding to zero initial velocity and inital deflection .

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