**B.Sc. DEGREE EXAMINATION, NOVEMBER 2017.**

**I YEAR — II SEMESTER**

**Core Course**

**ALLIED MATHEMATICS — II**

**Time : 3 hours Max. Marks : 75**

**SECTION A — (10 × 2 = 20 marks)**

**Answer any *TEN* questions.**

1. If 
2. Show that  is irrotational.
3. Solve 
4. Define singular solution.
5. Form the PDE by eliminating arbitrary constants from z = ax3+by3.
6. Solve z=px+qy+pq.
7. Prove that 
8. Evaluate 
9. Find the unit vector normal to the surface x2+ 2y2 += 7, at (1,-1,2).
10. Evaluate 
11. Write the reduction formulae for 
12. Evaluate 

**SECTION B — (5 × 5 = 25 marks)**

**Answer any *FIVE* questions.**

1. Express as a Fouries Series.
2. Solve 
3. Solve z = p2 + q2.
4. Evaluate .
5. Find the work done in moving a particle in a force  along the curve from (2,2,1) to (5,8,8).
6. Form the PDE by eliminating arbitrary function 
7. Evaluate .****

[P.T.O.]

**SECTION C — (3 × 10 = 30 marks)**

 **Answer any *THREE* questions.**

1. Find the Fourier Series for 

 

1. Solve .
2. Solve *(mz-ny)p+(nx-lz)q=ly-mx.*
3. Using Laplace Transform solve 
4. Verify Green’s theorem for where *c* is the boundary of the region R enclosed by the lines *y=0, x+y=1, x=0*.

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