**ASSIGNMENT NO 4**

# Course Code: MATH- Date: 8th Dec 2011

**Course Title: Number Theory Semester: Fall 2011**

**SOLVE**

1. ***2x + 5y =11***
2. ***1402 x + 1969 y = 1***
3. ***5x+6y = 1***
4. ***14x+8y = 4***
5. ***321x+105y =11***
6. ***23x - 49y = 179***
7. ***45x+63y = 450***
8. **Find the method for solving linear Diophantine for 3 variables, and solve following equations:**
9. ***x+y+z = 100 , x+8y+50z = 156***
10. ***15x +12y + 30z = 24***

***9. Find all solutions where x and y are integers to the Diophantine equation: 1/x+1/y =***

***1/14 .***

1. **What is the base 8 expansion of (12345)10 ?**
2. **If *a* is an odd integer, then, show that, .**
3. **Give a proof of Fermat’s theorem.**
4. **Solve:**
5. **Solve:**
6. **Find the day of the week of the day you were born and of your birthday this year.**
7. **Solve:**
8. **Show that is involutory modulo 26.**
9. **Show that if *a* is an even integer, then and if *a* is an odd integer, then**
10. **Show that if *a* is an odd integer, then,**
11. ***Solve:***
12. ***Solve:***
13. ***S0lve:***
14. ***State and prove Fermat’s Little Theorem.***
15. ***State and prove Wilson’s Theorem.***

**SUBMISSION Date: 02 Jan, 2012**