I PUC

MATHEMATICS

Maximum marks = 25

PART A:

I Answer all the questions: 1x3=3

1) If A has 4 elements. How many subsets does A has ?
2) Write the first three terms of the sequence $a_n = n/n+1$.
3) Find the value of the trigonometric function tan 19II/3

PART B:

II Answer all the questions: 2x4=8

1) If x and y are two sets such that n(x) = 17, n(y) = 23 and n(xUy) = 33. Find n(xny).
2) If cot x=3/4, x lies in third quadrant. Then find sinx and cosx.
3) Find the sum of odd integers from1 to 2001.
4) Find the value of 'x' for which the points (x, -1), (2, 1) and (4, 5) are collinear.

PART – C:

III Answer all the questions: 3x3=9

1) If U = {1,2,3,4,5,6,7,8,9}, A= {2,4,6,8} and B= {2,3,5,7}. Verify that $(AnB)^I = A^IUB^I$.
2) Derive an expression for angle between two lines with slope m_1 and m_2 respectively.
3) The sum of n terms of two arithmetic progressions are in the ratio (3n+8):(7n+15). Find the ratio of their 12^{th} terms.

PART- D:

IV Answer the following: 5x1=5

1) Prove geometrically cos(x+y) = cosx.cosy – sinx.siny