TRINITY COLLEGE NABBINGO
C.A TESTS TERM II
S.5 APPLIED MATHEMATICS
TIME: 1 HOUR

INSTRUCTIONS

- *Attempt all the questions.*
- *Show all the working clearly*
- *For numerical work take g = 9.8ms^{-2}*

1. Two events A and B are such that P(A) = 0.20, $P(A^1 \cap B) = 0.22$ and $P(A \cap B) = 0.18$, find;
   (i) $P(A \cap B^1)$
   (ii) $P(B)$
   (iii) $P(A \cup B)$

2. A box contains 3 red balls and I blue ball while another box contains 2 red balls and 3 blue balls. A box is selected at random and two balls are drawn from it without replacement. Find the probability that balls drawn are of different colours.

3. ABCD is a square. Forces of 8N, 10N, $15\sqrt{2}$ and $9\sqrt{2N}$ act along the line AB, BC, CA and DB respectively. in each case the order of the letters indicates the direction of the forces. Taking CD as horizontal, find the;
   (i) magnitude of the resultant force.
   (ii) inclination of the resultant force to CD.

4. A horizontal force P holds a body of mass 10kg in equilibrium on a smooth plane which is inclined at 30^0 to the horizontal. Calculate the magnitude of P and of the normal reaction between the particle and the plane.

5. A particle of mass 50kg is suspended by two strings 3m and 4m long. The strings are fixed at two points at the same horizontal level whose distance apart is 5M. Calculate the tensions in the strings.

6. M and N are two events associated in an experiment such that P(M) = 0.4, P (N) = x and $P(M \cup N) = 0.7$. Find the value of x for which the events M and N are;

   (i) disjoint
   (ii) independent

END