TTL 773: Design of Experiments and Statistical Techniques
Minor Test I
Full Marks: 25

Date: February 17, 2015 (Tuesday)
Time: 1-2 pm, Venue: V418A

1) In an agricultural experiment, there are 3 treatments to be compared in 3^2 plots. Experimental runs are required to be conducted under the assumption that there is no fertility difference among the 3^2 plots. Which design of experiments would you follow? State the model for describing the observations of the experiment. (1+1)

2) Name the design technique or statistical method to be used when a nuisance factor is (i) unknown and uncontrollable (ii) known but uncontrollable and (iii) known and controllable. (1+1+1)

3) Which of the following schemes of a Latin Square Design would you prefer and why? (2)

Scheme I

Replicate 1

A	B	C
B	C	A
C	A	B

Replicate 2

A	B	C
B	C	A
C	A	B

Scheme II

Replicate 1

A	B	C
B	C	A
C	A	B

Replicate 2

A	C	B
B	A	C
C	B	A

4) It is generally known that a Latin Square Design makes detection of significant results for the factor of interest more likely than a Completely Randomized Design or Randomized Block Design. Justify. (3)

5) A farmer wishes to test the effect of four different fertilizers (*A, B, C, D*) on the yield of wheat. In order to eliminate the sources of error due to variability in soil fertility, he uses the fertilizers in a Latin Square Design as shown here, where the numbers indicate the yield of wheat per unit area. Does the fertilizer affect the mean yield at 0.05 level of significance? If yes, determine which means are different? (9+6)

A 18	C 21	D 25	B 11
D 22	B 12	A 15	C 19
B 15	A 20	C 23	D 24
C 22	D 21	B 10	A 17

[End of Question Paper]