



Name :

Roll No. :

Invigilator's Signature :

CS/M.Tech(FT)/SEM-1/PGFT-104/2011-12

2011

ADVANCED STATISTICAL ANALYSIS

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A

(Short Answer Type Questions)

Write notes on any *five* of the following. $5 \times 2 = 10$

1. a) Correlation coefficient.
- b) Rank correlation.
- c) Bay's theorem
- d) Type I error
- e) Type II error
- f) Non-parametric method
- g) Null hypothesis.

**GROUP – B****(Long Answer Type Questions)**Answer any *four* of the following. $4 \times 15 = 60$

2. Calculate the coefficient of correlation from the following data :

x	2.52	2.49	2.49	2.45	2.42	2.42	2.41	2.40
y	730	710	770	890	970	1020	970	1040

3. Three identical boxes I, II, III contains respectively 4 white and 3 red balls, 3 white and 7 red balls and 2 white and 3 red balls. A box is chosen at random and a ball is drawn out of it. If the ball is found to be white what is the probability that Box II was selected ?
4. The table given below shows the data obtained during outbreak of smallpox :

	Attacked	Not Attacked	Total
Vaccinated	31	469	500
Not Vaccinated	185	1315	1500
Total	216	1784	2000

Test the effectiveness of vaccination in preventing the attack from smallpox. Test your result with the help of X^2 at 5 per cent level of significance.



5. Raju Restaurant near the Railway station at Falua has been having average sales of 500 tea cups per day. Because of the development of bus stand nearby, it expects to increase its sales. During the first 12 days after the start of the bus stand, the daily sales were as under :

550, 570, 490, 615, 505, 580, 570, 460, 600, 580, 530, 526.

On the basis of this sample information, can one conclude that Raju Restaurant's sales have increased ? Use 5 per cent level of significance.

6. Discuss the application of probability and distribution theory in Food Technology.
7. The specimen of copper wires drawn from a large lot have the following breaking strength (in kg weight) :

578, 572, 570, 568, 572, 578, 570, 572, 596, 544.

Test (t' statistic) whether the mean breaking strength of the lot may be taken to be 578 kg weight (test at 5 per cent level of significance).

=====