

Q.no. **Module 3** **Marks**

3.a Explain partial and multiple correlation coefficients **3**

Answer b or c

b Fit a second degree equation to the following data by the method of least squares and also find the value of $x=6$. **6**

X	1	2	3	4	5
F	5	12	36	66	97

c In a partially destroyed laboratory records of an analysis of correlation data only following results only legible: **6**

Variance of $x = 9$, Regression equations $8x-10y+66=0$,

$40x-18y=214$. What are

- i. the mean values of x and y
- ii. the correlation coefficient between x and y
- iii. standard deviation of y

Q.no. **Module 4** **Marks**

4.a Explain basic principles of experimental design **3**

Answer b or c

b Three varieties of a crop are tested in a randomized block design with four replications, the layout being as given below. The yields are given in kilograms. Analyse for significance. **6**

C48	A51	B52	A49
A47	B49	C52	C51
B49	C53	A49	B50

c Analyse the variance in the following Latin square of yield (in kgs) of paddy **6** where A,B,C,D denote different methods of cultivation:

D122	A121	C123	B122
B124	C123	A122	D125
A120	B119	D120	C121
C122	D123	B121	A122

Examine whether the different methods of cultivations have given significantly different yields.

Q.no. **Module 5** **Marks**

5.a Explain the components of time series **4**

Answer b or c

b Explain ARIMA models **8**

c Calculate the sessional indices from the following data using moving average method **8**

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
1992	72	68	80	70
1993	76	70	82	74
1994	74	66	84	80
1995	76	74	84	78
1996	78	74	86	82

Q.no. **Module 6** **Marks**

6.a Define bivariate normal distribution. **4**

Answer b or c

b Explain the principle components **8**

c Let $f(x,y) = 6y$ $0 < y < x < 1$. **8**

Find $F(x,y), f(x), g(y), f(x/y)$