



THE AMERICAN COLLEGE, MADURAI

(An Autonomous Institution Affiliated to Madurai Kamaraj University)
Re-accredited (2nd Cycle) by NAAC with Grade "A", CGPA – 3.46 on a 4-point scale

Backlog Arrear Examination, March 2021

MAT/MAS 2412/2446/236
Statistics-II

Mark : 75
Time : 3 hour

Answer any FIVE questions:

5 × 15 = 75

1. A manufacturer claimed that at least 95% of the equipment which he supplied to a factory conformed to specifications. An examination of a sample of 200 pieces of equipment revealed that 18 were faulty. Test his claim at a significance level of (i) 5% (ii) 1% .
2. The mean production of wheat of a sample of 100 plots is 200 Kgs per acre with S.D of 10 kgs. Another sample of 150 plots gives the mean production of wheat as 220 Kgs with S.D of 12 Kgs. Assuming the S.D of the 11 Kgs for the universe find, at 1% level of significance, whether the two results are consistent

3.

Sample	Size	Sample mean	Sum of squares of deviations from the mean
I	10	15	90
II	12	14	108

Two

random sample gave the following results.

Test whether the sample could have come from the same normal population.

4. Use the method of least squares and fit a straight line trend to the following data given from 82-92. Hence estimate the trend value for 1993.

Year	82	83	84	85	86	87	88	89	90	91	92
Production	45	46	44	47	42	41	39	42	45	40	48

5. Calculate (i) Laspeyre's (ii) Paasches' (iii) Fisher's index number for the following data given below.

Commodities	Base year 1990		Current year 1992	
	Price	Quantity	Price	Quantity
A	2	10	3	12
B	5	16	6.5	11

C	3.5	18	4	16
D	7	21	9	25
E	3	11	3.5	20

6. The following is the statistics showing the lives in hours of four batches of electric bulbs sold in different shops. Performs an analysis of variance and state your conclusion.

Batches	S1	S2	S3	S4	S5	S6	S7	S8
A	1600	1610	1650	1680	1700	1720	1800	---
B	1580	1640	1640	1700	1750	---	---	---
C	1460	1550	1600	1620	1640	1660	1740	1820
D	1510	1520	1530	1570	1600	1680	---	---

7. Analysis the variance in the following Latin square

A8	C18	B9
C9	B18	A16
B11	A10	C20
