

Al-Saudia Virtual Academy
Pakistan Online Tuition – Online Tutor Pakistan

M.A (PREVIOUS) EXTERNAL ANNUAL EXAMINATION 1999

“ECONOMICS” (PAPER-III) 1999

“ADVANCED ECONOMICS STATISTICS”

Time allowed: Three Hours

Max Marks:100

INSTRUCTIONS: 1) Attempt any five questions.

2) All questions carry equal marks.

1.(a) A raw data is transformed into a frequency distribution. Mean and standard Deviation calculated separately for each data. What do you expect, whether the means and standard deviations would be identical? If not, under what condition they would be identical.

b) A test was given to 200 candidates for a few vacancies in a bank. Marks obtain in the test are presented in the following table:

Marks	1-6	7-12	13-18	19-24	25-30	31-36	37-42	43-48
No of Candidate	10	30	40	45	35	20	15	05
Cumulative frequency	0	40	80	125	160	180	195	200

- i) Determine the mean (\bar{X}) and standard Deviation (S).
- ii) If the top 10 percent of the candidates are to be considered for employment what is the lowest limit of marks. 36.5.
- iii) Approximately what percent of candidates earned more than $(\bar{x} + 2S)$ marks

2. For the data given in Q-No.1 (b) above, determine:

- i) First three raw moments about 21.5 as origin.
- ii) First three true moments.
- iii) The above value of β_1 and comment about skewness of the data drawing a rough sketch of the distribution.

3. Given below is a demand schedule, where x is the price per unit in rupees and y is the quantity of a good in thousand units.

Price (X)	10	12	15	17	20	21	25	30	
Quantity (Y)	50	45	42	40	39	37	35	34	

- i) Estimate the demand function and predict the demand when price Rs.32 per unit.
- ii) Estimate the average revenue function and predict the average revenue when 55 thousand and units are demanded.
- iii) Determine the correlation coefficient between x and y.

4. Distinguish between:

- i) Discrete and continuous variables
- ii) Primary and Secondary data.
- iii) Time series and cross section data.
- iv) Measures of Location and Dispersion.
- v) Sample survey and census.

5.a) A set of 10 observations found to have a mean 55 and variance 15, Later, on checking it is discovered that two observations 45 and 55 were mistakenly recorded, while the correct observations were 40 and 60. Determine the corrected mean and variance.

b) State and explain the characteristic features of mean and Standard Deviation.

6.a) State and explain the steps involve in the construction of index numbers.

b) The group indices and the corresponding weights obtained from a house hold income and expenditure. Survey is given as under. Construct the cost of living index:

<u>GROUP</u>	<u>INDEX</u>	<u>WEIGHT</u>
FOOD	115	0.20
RENT	110	0.25
UTILITIES	125	0.15
EDUCATION	130	0.20
CLOTHING	135	0.10

7. Given below is the population of a town in millions during the past five census. Interpolate the population of the town during 1991.

YEARS: 1951 1961 1971 1981 1998

POP : 2.35 2.47 2.59 2.72 3.00

8. A) Let x be a normally distributed random variable having a mean 57 and a standard deviation 8. Determine the following probabilities:

(i) $P(x > 50)$ (ii) $P(x > 62)$ (iii) $P(50 < x < 67)$ (iv) $P(62 < x < 70)$ (v) $P(x = 60)$

b) There digit numbers are formulated using the digits 0, 1, 2, 3, 4, 5 and 6, no digit repeat in the same number. Find the probability of:

i) Even numbers. li) Odd numbers. lii) A number greater that 450.

9. A) Write a short note on Time Series Analysis.

b) Fit a second degree trend and calculate the trend values for the following data:

YEARS: 1980 1981 1982 1983 1984 1985 1986 1987 1988

SALES: 25 28 33 38 45 53 64 77 95
(000)