

6/H-16 (vii) (Syllabus-2017)

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(May/June)

ECONOMICS

(Honours)

(Statistics)

Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

Answer one question from each Unit

UNIT—I

1. (a) Distinguish between primary data and secondary data.

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- (b) The following data relate to the marks of 40 students in a class :

76	77	65	95	53	50	84	76
78	56	67	59	54	79	68	52
80	69	73	81	77	69	42	80
66	84	90	49	64	70	79	78
51	71	72	96	79	50	86	94

Prepare a suitable frequency table and calculate the mean deviation from the arithmetic mean.

2+4=6

(2)

- (c) Calculate the median from the following data :

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Age	No. of Persons
20-25	14
25-30	28
30-35	33
35-40	30
40-45	20
45-50	15
50-55	13
55-60	7

2. (a) The following data are the goals scored by a team of players. Calculate the mean and the standard deviation of goals scored : $4+4=8$

No. of goals	No. of Players
2	2
3	4
4	5
5	7
6	3
7	4
8	3
9	2

(3)

- (b) If Mean = 40 and variance = 64, find the coefficient of variation.

3

- (c) The following results are obtained from a distribution :

Mean = 50, Standard deviation = 15
and coefficient of skewness = -1

Find the median.

4

UNIT—II

3. (a) Define correlation. Explain different types of correlation.

$2+5=7$

- (b) Prove that $b_{xy} \cdot b_{yx} = R^2$, where R is correlation.

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- (c) Show that correlation coefficient (R) lies between -1 and 1.

4

4. (a) Why are there two regression lines?

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- (b) Given the following data :

X :	1	2	3	4	5	6	7	8	9
Y :	9	8	10	12	11	13	14	16	9

Find—

- (i) the regression equation of Y on X ;
(ii) the regression equation of X on Y ;
(iii) the correlation coefficient between X and Y.

$4+4+4=12$

(4)

UNIT—III

5. (a) Explain the components of time series. 5

(b) The number of employees employed in a factory is given below :

Year	No. of Employees
2005	63
2006	68
2007	74
2008	80
2009	88
2010	86
2011	90
2012	98
2013	96
2014	100
2015	102
2016	108
2017	108

Estimate the trend using 3-yearly and 4-yearly moving average. 10

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(Continued)

(5)

6. Explain various methods of curve fitting with suitable examples. 15

UNIT—IV

7. (a) What are index numbers? What are their uses? 2+3=5

(b) Distinguish between time reversal test and factor reversal test. 4

(c) From the following data, compute Fisher's price and quantity index numbers for the current year : 3+3=6

Commodity	Base Year		Current Year	
	Price (₹)	Quantity	Price (₹)	Quantity
A	10	12	12	15
B	7	15	5	20
C	5	24	9	20
D	16	5	14	5

8. (a) Describe various problems involved in the construction of index number. 6

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(Turn Over)

(6)

- (b) Prices and expenditures for commodities A, B, C, D and E for the years 1990 and 2000 are given below :

Commodity	1990		2000	
	Price	Expenditure	Price	Expenditure
A	10	50	15	75
B	15	45	18	72
C	12	72	10	80
D	5	40	8	56
E	20	60	30	120

Compute Laspeyres' and Paasche's index numbers.

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UNIT—V

9. (a) Three coins are tossed simultaneously. What is the probability that the three coins show (i) 3 heads (ii) 2 heads and 1 tail? $2+3=5$
- (b) Define mathematical expectation of a random variable. Prove that the expectation of the sum of two random variables is equal to the sum of their expectations. $3+7=10$

(7)

10. (a) Prove that the mean and variance of Poisson distribution are equal. 9
- (b) Write notes on any *two* of the following : $3 \times 2 = 6$

- (i) Cluster sampling
(ii) Stratified random sampling
(iii) Systematic sampling

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