3 SEM TDC ECO M 2

2012

(November)

ECONOMICS

(Major)

Course : 302

(Statistical Methods in Economics)

Full Marks : 80
Pass Marks : 32

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Choose the correct answer/Answer the following : 1×8=8

(a) 'The *n*th root of the product of *n* items of a series' is termed as

(i) geometric mean

(ii) harmonic mean

(iii) mode

(iv) standard deviation

(Turn Over)

(b) The sample of A and B have same standard deviation δ. But, the arithmetic mean $\bar{X}$ of $A > B$. The coefficient of variation of A will be

(i) less than B

(ii) greater than B

(iii) equal to B

(iv) None of the above

(c) The chance of drawing a king in a draw from a pack of 52 cards is

(i) $\frac{1}{52}$

(ii) $\frac{1}{13}$

(iii) $\frac{1}{2}$

(iv) $\frac{1}{4}$

(d) In case of a normal distribution, the coefficient of skewness is

(i) 1

(ii) > 1

(iii) 0

(iv) < 1

(e) Mention one merit of arithmetic mean.

(Continued)

(f) The Spearman's coefficient of rank correlation ρ ranges from

(i) 0 to +1

(ii) −1 to +1

(iii) −1 to 0

(iv) None of the above

(g) The value of $\sqrt{bxy \times byx}$ is equal to

(i) δ_y

(ii) δ_x

(iii) r^2

(iv) r

(h) Mention one limitation of mean deviation.

2. Write short notes on any *four* of the following (within *150* words each) : 4×4=16

(a) Skewness and kurtosis

(b) Binomial distribution

(c) Distinction between correlation and regression.

(d) Type-II error

(e) Splicing of index numbers

(Turn Over)

3. *(a)* What do you mean by dispersion? Explain various methods of computing dispersion. 2+9=11

Or

(b) From the following data, find the missing frequencies when the mean $\overline{X}$ is 56·47 ($N = 150$) : 11

Daily wages (Mid-value) (in Rs)	45	50	55	60	65	70	75
Frequency	5	48	?	30	?	8	6

4. *(a)* What is sampling? Describe different types of sampling. 2+9=11

Or

(b) In a survey, the following results were found in a town :

	Male	*Female*	*Total*
Taking tea	56	31	87
Not taking tea	18	6	24
Total	74	37	111

Discuss whether there is any significant difference between male and female in the matter of taking tea. [The value of χ^2 for 1 degree of freedom at 5% level of significance is 3·84.] 11

(Continued)

5. *(a)* State and prove the multiplication theorem of probability. How is the result modified if the events are not independent? 8+3=11

Or

(b) If two dice are thrown, what is the probability of getting—

(i) either total 8 or total 10;

(ii) at least one six;

(iii) total being multiple of 3 or 4;

(iv) total of 9? 3+3+3+2=11

6. *(a)* Mention the properties of Karl Pearson's coefficient of correlation. Find Karl Pearson's coefficient of correlation between the following values of X and Y : 3+9=12

X	:	78	89	96	69	59	79
Y	:	125	137	156	112	107	136

Or

(b) From the data given below, find *(i)* the two regression equations, *(ii)* the most likely marks in Statistics, when the marks in Economics is 30 : 5+5+2=12

Marks in Economics	:	25	28	35	32	31	36	29
Marks in Statistics	:	43	46	49	41	36	32	31

(Turn Over)

7. *(a)* *(i)* Mention the problems of construction of index numbers. 4

(ii) From the following data, construct Fisher's ideal index : 7

Ideal Index :

Commodities	*2010*		*2011*	
	Price	*Quantity*	*Price*	*Quantity*
A	5·00	100	6·00	150
B	4·00	80	5·00	100
C	2·50	60	5·00	72
D	12·00	30	9·00	33

Or

(b) *(i)* Distinguish between fixed-base and chain-base index numbers. 6

(ii) Find chain-base index numbers from the following fixed-base index numbers : 5

Year	2007	2008	2009	2010	2011
Fixed-base index numbers	80	88	105·60	95·04	133·06

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