3 SEM TDC ECO M 2

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(November)

ECONOMICS

(Major)

Course : 302

(Statistical Methods in Economics)

Full Marks : 80

Pass Marks : 32 (Backlog) / 24 (2014 onwards)

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Answer the following as directed :　　1×8=8

   (a) The probability of drawing a red-coloured card in a draw from a pack of 52 cards is _____.

   　　　　　　　　　　　(Fill in the blank)

   (b) The algebraic sum of deviations from mean is

   　(i) 1

   　(ii) 0

   　(iii) mean multiplied by the number of observation

   　(iv) None of the above

   　　　　　　　(Choose the correct answer)

　　　　　　　　　　(*Turn Over*)

(c) The standard deviation of a binomial distribution is _____.

(Fill in the blank)

(d) A method of sampling in which the population is divided into different homogeneous groups in terms of some characteristics is called.

(i) judgement sampling

(ii) random sampling

(iii) stratified sampling

(iv) systematic sampling

(Choose the correct answer)

(e) Both the regression coefficients should have the same sign.

(Write True or False)

(f) The error of rejecting a correct null hypothesis is known as

(i) type I error

(ii) type II error

(iii) Both type I and type II errors

(iv) All of the above

(Choose the correct answer)

(Continued)

(g) If every item in a data set is multiplied by 3, then the standard deviation of the resulting data set is equal to the

    (i) original standard deviation

    (ii) standard deviation of the original data set multiplied by 3

    (iii) standard deviation of the original data set divided by 3

    (iv) None of the above

            (Choose the correct answer)

(h) The circular test is satisfied when

    (i) $P_{01} \times P_{12} \times P_{21} = 0$

    (ii) $P_{01} \times P_{12} \times P_{20} = 1$

    (iii) $P_{10} \times P_{21} \times P_{20} = 1$

    (iv) None of the above

            (Choose the correct answer)

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

(a) Arithmetic mean

(b) Poisson distribution

(c) Random sampling

(d) Spearman's rank correlation

(e) Fixed base and chain base index numbers

3. (a) What do you mean by absolute dispersion and relative dispersion? Explain various methods of computing dispersion. $3+8=11$

Or

(b) Calculate standard deviation and coefficient of variation from the following distribution : $6+5=11$

Age	20–30	30–40	40–50	50–60	60–70	70–80	80–90
No. of persons	2	55	123	150	140	51	4

4. (a) (i) If, from a pack of cards, a single card is drawn, what is the probability that it is either spade or a king?

(ii) What is the probability of getting a sum total of either 5 or 12 in a single throw of two dices? $5+6=11$

Or

(b) Define the following with example : $2+2+2+3+2=11$

(i) Exhaustive cases

(ii) Mutually exclusive events

(iii) Sample space

(iv) Random variable and mathematical expectation

(v) Conditional probability

5. (a) Calculate the coefficient of correlation from the following data and interpret :

$9+3=12$

X	28	41	40	38	35	33	40	32	36	33
Y	23	34	33	34	33	26	28	31	36	38

Or

(b) (i) Why are there two lines of regression for each bivariate distribution? When do the two regression lines coincide?

(ii) A panel of judges A and B graded seven debators and independently awarded the following marks :

Debators	1	2	3	4	5	6	7
Marks by A	40	34	28	30	44	38	31
Marks by B	32	39	26	30	38	34	28

The eighth debator was awarded 36 marks by judge A while judge B

(*Turn Over*)

was not present. If judge B was also present, how many marks would you expect him to award to the eighth debator? $(2+2)+8=12$

6. (a) What is sampling? Discuss the advantages of sample survey over census method. Mention the condition when census method may be used with advantage. $2+6+3=11$

Or

(b) From the following data, find the effectiveness of inoculation in preventing attack of the disease (The value of χ^2 for 1 degree of freedom at 5% level of significance is 3·84) : 11

	Attacked	Not attacked
Inoculated	120	240
Not inoculated	280	360

7. (a) (i) Why is Fisher's method considered as the ideal index method?

(ii) Describe the use of index numbers for deflating time series data.

$5+6=11$

Or

(b) From the following data, construct
   (i) Laspeyres' index, (ii) Paasche's index
   and (iii) Fisher's ideal index of price :

$3+3+5=11$

Commodities	2012		2013	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

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