Total No. of Printed Pages—7

3 SEM TDC ECOH (CBCS) C 7

2020

(Held in April–May, 2021)

ECONOMICS

(Core)

Paper : C–7

(Statistical Methods for Economics)

Full Marks : 80
Pass Marks : 32

Time : 3 hours

The figures in the margin indicate full marks for the questions

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

(a) Mention one limitation of median.

(b) Mention one disadvantage of census method.

(c) In normal distribution, kurtosis is

(i) leptokurtic

(ii) platykurtic

(iii) mesokurtic

(iv) infinite

(Choose the correct option)

(d) Mention one use of geometric mean.

(e) Determine the range from the following distribution :

x	:	30	35	40	45	50
f	:	15	11	4	6	2

(f) The probability of getting at least one head, when two coins are tossed is

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

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

(iii) $\frac{3}{4}$

(iv) None of the above

(Choose the correct option)

(g) Which of the following can measure any type of relationship?

(i) Scatter diagram method

(ii) Karl Pearson's coefficient of correlation method

(iii) Spearman's rank correlation method

(iv) All of the above

(Choose the correct option)

(h) Out of all measures of dispersion, the easiest one is

(i) standard deviation

(ii) range

(iii) quartile deviation

(iv) variance

(Choose the correct option)

2. Write short notes on any *four* of the following : 4×4=16

(a) Range

(b) Sampling

(c) Testing of hypothesis

(d) Skewness

(e) Correlation and regression

3. *(a)* Define median and mode. Explain how these two measures are calculated in case of grouped and ungrouped data. 4+7=11

Or

(b) Calculate the arithmetic mean and median from the following data : 5+6=11

Marks obtained in Exam.	*No. of Students*
10–20	1
20–30	2
30–40	3
40–50	5
50–60	7
60–70	12
70–80	16
80–90	10
90–100	4

4. *(a)* *(i)* Explain with examples the addition theorem and multiplication theorem of probability. 8

(ii) Define mathematical expectation with suitable example. 4

Or

(b) *(i)* Show that the probability of drawing a king or a queen in a single draw of a well-shuffled pack of card is $\frac{3}{13}$. 6

(ii) What is the probability of getting a sum of either 11 or greater than 7 by throwing two dice? 6

5. *(a)* Distinguish between Binomial distribution and Poisson distribution. What are the principal properties of those distributions? 5+6=11

Or

(b) Four coins are tossed simultaneously. What is the probability of getting—

(i) 2 heads;

(ii) at least 2 heads;

(iii) at least one head? 11

6. *(a)* Distinguish between sampling and census. What are the principal steps undertaken in a sample survey? 5+6=11

Or

(b) A die was thrown 90 times with the following results :

Face	:	1	2	3	4	5	6	Total
Frequency	:	10	12	16	14	18	20	90

Are these data consistent with the hypothesis that the die is uniform?

(Given, $\chi^2_{0\cdot05} = 11\cdot07$ for 5 degrees of freedom) 11

7. *(a)* Define 'rank correlation'. Write down Spearman's formula for rank correlation coefficient ρ. What are the limits of ρ?
5+4+2=11

Or

(b) Find the coefficient of correlation from the following data : 11

x	:	39	65	62	90	82	75	25	98	36	78
y	:	47	53	58	86	62	68	60	91	51	84

★★★