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SARDAR PATEL UNIVERSITY

B.A. (Advanced SEMESTER –IV) (CBCS) EXAMINATION

TUESDAY , 17th APRIL 2018

UA04EEEC01 : Statistical Techniques in Economics

Time : 02:00 P.M. TO 04:00 P.M. **Total Marks : 60**

Note : (1) Figures to the right indicate marks.
(2) Use of simple calculator is permitted.

Q1 (A) Tick the correct answer. [15]

(1) The height of an individual is an example of a:
(i) discrete variable (ii) continuous variable
(iii) categorical variable (iv) constant.

(2) Number of times the data value is repeated is called
(i) Observation (ii) Frequency
(iii) Repetition (iv) None of these.

(3) Government publications are considered as
(i)secondary data sources (ii) external primary data sources
(iii) internal primary data sources (iv) none of these.

(4) The sum of deviations of the individual data elements from their mean is
(i)always greater than zero (ii)always equal to zero
(iii) sometimes greater than and sometimes less than zero.
(iv)none of these.

(5) Number of accidents on a road is an example of
(i) discrete variable (ii) quantitative variable
(iii) qualitative variable (iv) both (i) and (ii)

(6) Lack of symmetry is called
(i) absolute dispersion (ii) relative dispersion
(iii) skewness (iv) none of these.

(7) Which of the following is the first step in calculating the median of a data set ?
(i)average the middle two values
(ii)arrange the data in increasing or decreasing order of magnitude.
(iii)determine the relative weights of the data values in terms of its importance.
(iv) none of these.

(8) The square of variance is
(i)standard deviation (ii) mean (iii) range (iv) none of these.

(9) In binomial distribution, formula of calculating mean is
(i)mean=$p + q$ (ii)mean=np (iii)mean=pq (iv)mean=nq

(10) For a normal distribution the value of mean, median and mode are always

P.T.O.

(i) in ascending order (ii) in descending order
(iii) equal (iv) none of these.

(11) If the occurrence of one event does not depend on occurrence or non-occurrence of other events then two events are called
(i) conditional events (ii) joint events
(iii) independent events (iv) none of these.

(12) In binomial distribution the parameter p is
(i) probability of success (ii) probability of failure
(iii) probability of impossible event. (iv) none of these.

(13) In Poisson distribution
(i) mean and variance are equal
(ii) standard deviation and variance are equal
(iii) mean and standard deviations are equal.
(iv) none of these.

(14) If P(A/B) = P(A) then A and B are
(i) dependent (ii) conditional
(iii) Independent (iv) none of these.

(15) Skewness of normal distribution is
(i) 1 (ii) -1 (iii) 0 (iv) none of these.

Q2 (A) What do you understand by central tendency as a characteristic of data? Name some of its important measures. [5]

(B) The marks obtained by 60 students in the subject of economics are given below. Construct a frequency distribution with equal class interval of length 10 containing 40-50 as one of the classes. [4]

40	25	42	45	43	55	51	46	36	24
28	18	05	26	17	09	13	25	36	44
41	43	38	26	32	59	49	53	27	13
01	41	33	39	73	36	35	33	63	46
11	66	50	19	58	37	06	51	19	29
56	14	18	39	04	44	55	51	46	65

(C) Find mean, median and mode for the following data. [6]

Class	0-20	20-40	40-60	60-80	80-100	100-120
Frequency	80	165	230	80	32	13

OR

Q2 (A) The average marks secured by 36 students were 52.But it was discovered that an observation 64 was misread as 46. Find the correct mean marks. [5]

(B) Find coefficient of variation for the following data. [10]

Class	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79
Frequency	6	14	16	24	20	10	6	4

Q3 (A) What does kurtosis relate to? Describe it in relation to a symmetrical distribution. [5]

(B) Compute the mean deviation about the mean for the following data. [10]

Height in (cms)	158	159	160	161	162	163	164	165	166
No of persons	15	20	32	35	33	22	20	10	08

OR

Q3 (A) Explain the following terms : [6]
(i) Exhaustive events (ii) Random experiment (iii) Independent events.

(B) What is the probability that a leap year selected at random contains 53 Sundays? [3]

(C) Tickets are numbered from 1 to 100.They are well shuffled and a ticket is drawn at random. What is the probability that the drawn ticket has : [6]
(i) an even number (ii) a number 5 or multiple of 5
(iii) a number which is a square.

Q4 (A) State and prove the law of addition of probabilities for two events. [5]

(B) State the properties of normal distribution. [5]

(C) The incidence of occupational disease in an industry is such that the workmen have 20 % chance of suffering from it. What is the probability that out of 6 workmen, 4 or more will contact the disease? [5]

OR

Q4 (A) Write the assumptions of binomial distribution. [5]

(B) Bottled sweet milk stored in a godown is reported to have gone sour. A test check has revealed that milk in 25 per cent of the bottles is bad and thus unfit for consumption. The salesman at a retail outlet offers 5 bottles for sale on demand, find the probability that milk will be unfit for consumption [4]
(i) exactly in 2 bottles (ii) at least in 2 bottles

(C) A two months (60-day) period was observed for the number of accidents taking place per day in a city. The distribution of days according to the number of accidents was observed as given below. Fit a Poisson distribution. [6]

No of accidents	0	1	2	3	4	5
No of days.	30	13	08	06	02	01

$\left[e^{-1} = 0.3679 \right]$