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Total Number of Pages: 02

B.PLAN
15BPLN104

1st Semester Regular Examination 2017-18
STATISTICAL AND QUANTITATIVE METHODS IN PLANNING- I
BRANCH: B.Plan
Time: 3 Hours
Max marks: 100
Q.CODE : B1029

Answer Question No.1 and Question No. 2 which are compulsory and any FOUR from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: (2 x 10)

- a) Statistics does not deal with ----- measurements.
- b) Two important techniques of data collection are ---- and -----.
- c) Classification of statistical data under two categories are ----- an -----.
- d) Circular diagrams are ----- dimensional diagrams.
- e) Mean deviation is ----- of standard deviation.
- f) Given median 20.6, mode 26, the mean would be ----.
- g) The sum of the deviations of the items from the arithmetic mean is -----.
- h) The coefficient of correlation lies between ----- and -----.
- i) Probability ranges from ----- to -----.
- j) In a negatively skewed distribution the value of ----- is maximum.

Q2 Answer the following question: Short answer type (2 x 10)

- a) What are the limitations of statistics?
- b) State the merits of arithmetic mean.
- c) What are the important techniques of data collection?
- d) Explain quartile deviation.
- e) Find the difference between absolute mean deviation and standard deviation.
- f) State the multiplicative rule of probability.
- g) State the advantages of Spearman's rank correlation coefficient.
- h) For a binomial distribution of mean 4 and variance 2, then find the probability of getting at most 1 success.
- i) In a single through of two dice what is the probability of getting a total of 8?
- j) Define random variable. State the types of random variable.

Q3 a) Explain the different phases of the work to execute the survey of data collection. (10)
b) Write the merit of direct personal interview for primary data collection. (5)

Q4 a) Calculate mean, median and mode from the following data? (10)

Marks	:	0--10	10 -- 20	20 -- 30	30--40	40 — 50	50 -- 60
No of students	:	5	10	25	30	20	10

- b)** The mean and standard deviation of a set of 100 observations were worked out as 40 & 5 respectively by a computer who by mistake took the value 50 in place of 4 for one observation. Find the correct mean and variance. **(5)**
- Q5 a)** Define Spearman's rank correlation coefficient. Write merits and limitations of this rank method. Find the rank correlation coefficient of the followings. **(10)**
Accountancy : 3 5 8 4 7 10 2 1 6 9
Auditing : 6 4 9 8 1 2 3 10 5 7
- b)** The first four central moments of distribution are 0, 2.5, 0.7 & 18.75. **(5)**
Comment on the skewness and Kurtosis of the distribution.
- Q6 a)** The probability that a married man watches a certain T V show is 0.4 and the probability that a married woman watches the show is 0.5. The probability that a man watches the show, given that his wife does, is 0.7. Find the probability that **(10)**
i) a married couple watches the show;
ii) a wife watches the show given that her husband does;
iii) at least one person of a married couple will watch the show.
- b)** From the following data compute the value of harmonic mean. **(5)**
Class interval: 10-20 20-30 30-40 40-50 50-60
Frequency : 4 6 10 7 3
- Q7 a)** Define expected value of a random variable. A firm plans to bid Rs 300 per tonne for a contract to supply 1000 tonne of a metal. It has two competitors A and B and it assumes that the probability that A will bid less than Rs 300. Per tonne is 0.3 and that B will bid less than Rs 300 per tonne is 0.7. If the lowest bidder gets all the business and the firm bid independently what is the expected value of the contract to the firm? **(10)**
- b)** The daily wages of 1000 workmen are normally distributed around a mean of Rs 70 and with a standard deviation of Rs 5. Estimate the no of workers whose exactly wages will be **(5)**
i) between Rs 69 and 72.
ii) more than Rs 75.
- Q8 a)** Explain simple random sampling with different methods. Write merits and limitations of simple random samplings. **(10)**
- b)** Discuss about different types of two dimensional diagrams. **(5)**
- Q9 a)** State and explain concurrent deviation method. Calculate coefficient of correlation by concurrent deviation method from the following data: **(10)**
X: 100 120 135 135 115 110 120
Y: 50 40 60 80 80 58 68
- b)** Define binomial distribution and explain its importance. Assuming that half the population is vegetarian so that the chance of an individual being a vegetarian is 0.5 and assuming that 100 investigators can take sample of 10 individuals to see whether they are vegetarians, how many investigators would you expect to report that three people or less were vegetarians? **(5)**