P P SAVANI UNIVERSITY

Third Semester of B.Sc. IT Examination

Nov-Dec 2021

SESH2060 Statistics

03.12.2021, Friday **Time: 9:00 a.m. To 11:30 a.m.** **Maximum Marks: 60**

Instructions:

1. The question paper comprises of two sections.
2. Section I and II must be attempted in same answer sheets.
3. Make suitable assumptions and draw neat figures wherever required.
4. Use of scientific calculator is allowed.

SECTION – I

Q - 1 Answer any six of the followings. **[06]**

(i) Write the definition of statistical data.

(ii) What will be the mode of 2, 2, 3, 4, 6 and 3?

(iii) Write the definition of quartile deviation.

(iv) What is the method to find the coefficient of correlation and write its formula?

(v) How to find median if mode and mean of a distribution is given?

(vi) Define standard deviation and write the formula for discrete distribution.

(vii) Define z-score of statistical data?

(viii) State the different types of correlation.

Answer any three of the followings.

Q - 2 Calculate mean, median and mode of the following distribution. **[08]**

X	0-10	10-20	20-30	30-40	40-50
Frequency	12	18	20	25	23

Q - 3 Find the range and coefficient of range of the following. **[08]**

Marks	10-20	20-30	30-40	40-50	50-60
Number of Students	8	10	12	8	4

Q - 4 Calculate the standard deviation for the discrete frequency distribution. (Assumed mean is 60). **[08]**

Salary	45	50	55	60	65	70	75	80
Number of persons	3	5	8	7	9	7	4	7

Q - 5 Compute the coefficient of correlation for the following data. **[08]**

Marks in accounts	48	35	17	23	47
Marks in statistics	45	20	40	25	45

SECTION – II

Q - 1 Answer any six of the followings. **[06]**

(i) What is the probability of getting at least one head if you toss two coins?

(ii) Write one example each where the probability of an event is zero and one.

(iii) Evaluate the value of $P(A \cap B)$, if $P(A) = 0.3$, $P(B^c) = 0.4$, and $P(AUB) = 0.4$.

(iv) Write the mean and variance of uniform probability distribution.

(v) Find the constant p such that $f(x) = px$, *if* $0 < x < 3$ and $f(x) = 0$, *otherwise* is a probability density function.

(vi) In which probability distributions mean and variance are unequal?

(vii) Write the definition of student's 't' distribution.

(viii) Define type II and type I error.

Answer any three of the followings.

Q - 2 Find the probability of an ace and a jack card from a pack of cards in two consecutive draws, the cards drawn not being replaced. [08]

Q - 3 Derive the mean and variance of Poisson distribution. [08]

Q - 4 The mean and variance of a binomial variate are 8 and 6. Find $P(X \geq 2)$. [08]

Q - 5 An ambulance service company claims that on an average it takes 20 minutes between a call for an ambulance and the patient's arrival at the hospital. If in 6 calls the time taken (between a call and arrival at hospital) are 27, 18, 26, 15, 20, 32. Can the company's claim be accepted? (Note: $t_\alpha = 1.476$). [08]

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