

PSG COLLEGE OF ARTS & SCIENCE  
(AUTONOMOUS)  
BVoc DEGREE EXAMINATION DECEMBER 2019  
(First Semester)

Branch - NETWORKING AND MOBILE APPLICATION

STATISTICAL DATA ANALYTICS

Time: Three Hours

Maximum: 75 Marks

**SECTION-A (10 Marks)**

Answer ALL questions

ALL questions carry EQUAL marks

(10 x 1 = 10)

- 1 Which of the following represent data?  
(i) single value (ii) only two values in a set  
(iii) a group of value in a set (iv) none of the above
- 2 If for an individual series, assumed mean  $A = 25$ ,  $Ldx = -21$  for  $dx = X - A$  and  $N = 7$ , then the mean of the series is  
(i) 20 (ii) 21  
(iii) 22 (iv) 6.57
- 3 Regression co-efficient is independent of the change of  
(i) STcale (ii) origin  
(iii) both origin & scale (iv) neither origin nor scale
- 4 The idea of product moment correlation was given by  
(i) R.A.Fisher (ii) Sir Francis gatton  
(iii) Karl pearson (iv) Spearman
- 5 Seasonal variations means the variatious occurring within  
(i) a number of years (ii) parts of a year  
(iii) parts of a month (iv) monthly
- 6 The outcome of tossing a coin is a  
(i) Simple event (ii) mutually exclusive event  
(iii) Complementary event (iv) compound event
- 7 Student's t test is applicable in case of  
(i) sample test (ii) for samples of size between 5 and 30  
(iii) large samples (iv) samples more than 50
- 8 The formula for testing the hypothesis for proportions  $H_0: P_1 = P_2$  vs  $H_0: P_1 \neq P_2$  is  
(i)  $Z = \frac{P_1 - P_2}{s(P_1 - P_2)}$  (ii)  $Z = \frac{P_1 - P_2}{s^2(P_1 - P_2)}$   
(iii)  $Z = \frac{P_1 - P_2}{sp_1 - sp_2}$  (iv)  $Z = \frac{P_1 - P_2}{sp}$
- 9 Degrees of freedom for statistic  $\chi^2$  in case of contingency table of order (2x2) is  
(i) 3 (ii) 4  
(iii) 2 (iv) 1
- 10 In testing the equality of several population means by F test, the assumption is  
(i) population are continuous (ii) population are homogeneous

**SECTION - B (35 Marks)**Answer **ALL** Questions**ALL** Questions Carry **EQUAL** Marks ( $5 \times 7 = 35$ )

Define statistics uses and limitations of statistics.

**OR**

Mention the calculate the median and mode for the following frequency distribution.

Marks	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50
No. of students	7	15	24	31	42	30	26	15	10

Explain briefly about scatter diagram with suitable illustrations.

**OR**

Determine the regression co-efficient for the following data:

X	6	2	10	4	8
Y	9	11	5	8	7

Calculate the 3-yearly moving average of the production figures given below:

Year:	1993	1994	1995	1996	1997	1998	1999	2000
Production (in m.tonnes)	15	21	30	36	42	46	50	56 *
Year:	2001	2002	2003	2004	2005	2006	2007	
Production (in m.tonnes)	63	70	74	82	90	95	102	

**OR**

A bag contains 30 balls numbered from 1 to 30. One ball at random. Find the probability that the number of the ball drawn will be a multiple of (i) 5 or 7 (ii) 3 or 7

In a random sample of 1000 persons from town A, 400 are found to be consumers of wheat. In a sample of 800 from town B, 400 are found to be consumers of wheat, do these data reveal a significant difference between town A and town B, so far as the proportion of wheat consumer is concerned?

**OR**

To verify whether a course in according improved performance a similar test was given to 12 participants both before and after the course. The original marks recorded in alphabetical order of the participants were - 44,40,61,52,32,44,70,41,67,72,53 and 72. After the course, the marks were in the same order, 53,38,69,57,46,39,73,48,73,74,60 and 78. Was the course useful.

Two random samples were drawn from two normal populations and their values are

A: 66,67,75,76,82,84,88,90,92

B: 64,66,74,78,82,85,87,92,93,95,97

Test whether the two populations have the same variance at the 5% of significance ( $F_{0.05}(10,8) = 3.36$ ).

**OR**

Based on information on 100 randomly selected fields about the tenancy status of the cultivation of these fields and use of fertilizers, collected in a agro-economic survey, the following classification is noted would you concluded that owner cultivators are more inclined towards use of fertilizers at 5% level of significance? (XQ OS (1) - 3.84],

	Owned	Rented
Using fertilizers	416	184

**SECTION - C (30 Marks)**Answer any **THREE** Questions**ALL** Questions Carry **EQUAL** Marks (3 x 10 = 30)

16 Calculate mean, median and mode of the following data:

Variable	10-13	13-16	16-19	19-22	22-25	25-28	28-31	31-34	34-37	37-40
Frequency	8	15	27	51	75	54	36	18	9	7

17 The following table shows the ages (X) and blood pressure (Y) of 8 persons.

X:	52	63	45	36	72	65	47	25
Y:	62	53	51	24	79	43	60	33

Obtain the regression equation Y on x and find the expected blood pressure of a person who is 49 years old.

18 The incidence of a certain disease is such that on the average 20% of workers suffer from it. If 10 workers are selected at random, find the probability that (i) exactly 2 workers suffer from the disease  
(ii) not more than 2 workers suffer from the disease.

19 In a test given two group of students, the marks obtained are as follows:

Group T 18,20,36,50,49,36,34,49 and 41

Group II: 29,28,26,35,30,44 and 46

Examine the significance of difference between mean marks of two groups at 5% level of significance.

20 From the following data; find out whether there is any relationship between sex and preference of colour.

Colour	Male	Female
Red	10	40
White	70	30
Green	30	20

Z-Z-Z

END