C 32265 (Pages : 3) Name.....

Reg. No.....

FIRST SEMESTER M.B.A. DEGREE EXAMINATION, DECEMBER 2017

(CUCSS)

BUS 1C 07—QUANTITATIVE TECHNIQUES

(2016 Admissions)

Time : Three Hours Maximum : 36 Weightage

Part A

Answer **all** *the questions.*
Each question carries 1 *weightage.*

1. What is inferential analysis ?
2. What are non-parametric tests ?
3. Distinguish between correlation and regression.
4. Explain random variable and random experiment.
5. Explain one-tailed test and two-tailed test in testing hypothesis.
6. What is coefficient of determination ?

(6 × 1 = 6 weightage)

Part B

Answer any **four** *questions.*
Each question carries 3 *weightage.*

7. What is normal distribution ? Explain the properties of a normal distribution.
8. A company uses a 'selling aptitude test' in the selection of salesmen. Past experience has shown that only 70% of all persons applying for a sales position achieved a classification "dissatisfactory" in actual selling, whereas the remainder were classified as "satisfactory", 85% had scored a passing grade on the aptitude test. Only 25% of those classified unsatisfactory, had passed the test on the basis of this information. What is the probability, that a candidate would be a satisfactory salesman given that he passed the aptitude test ?
9. Explain with illustrations the concept of point estimation and interval estimation.
10. How to create a variable in SPSS ? Explain the procedure for entering data into SPSS.

Turn over

11. Calculate Karl Pearson's co-efficient of correlation from the following data and interpret its value :

Roll No. of students	:	1	2	3	4	5
Marks in accountancy	:	48	35	17	23	47
Marks in Statistics	:	45	20	40	25	45

12. On the basis of following information compute :

(a) $r_{23.1}$. (b) $r_{13.2}$.

(c) $r_{12.3}$.

$r_{12} = 0.70$; $r_{13} = 0.61$; $r_{23} = 0.4$.

(4 × 3 = 12 weightage)

Part C

Answer any **three** *questions.*
Each question carries 4 *weightage.*

13. What is SPSS ? How does it help the researchers in carrying out the analysis ?

14. Distinguish between Binomial, Poisson and Normal distributions.

15. The following data relate to the scores obtained by 9 salesmen of a company in an intelligence test and their weekly sales in thousand rupees :

Sales intelligence	:	A	B	C	D	E	F	G	H	I
Total scores	:	50	60	50	60	80	50	80	40	70
Weekly sales	:	30	60	40	50	60	30	70	50	60

(a) Obtain the regression equation of sales on intelligence test scores of the salesman.

(b) If the intelligence test score of a salesman is 65, what would be his expected weekly sales.

16. Hinton Press hypothesizes that the average life of its largest web press is 14,500 hours. They know that the standard deviation of press life is 2100 hours. From a sample of 25 presses, the company finds a sample mean of 13,000 hours. At a 0.01 significance level, should the company conclude that the average life of the presses is less than the hypothesized 14,500 hours ?

17. A brand manager is concerned that her brand's share may be unevenly distributed throughout the country. In a survey in which the country was divided into four geographical regions, a random sampling of 100 consumers in each region was surveyed, with the following results :

	Region				Total
	NE	NW	SE	SW	
Purchase the brand	40	55	45	50	190
Do not purchase	60	45	55	50	210
Total	100	100	100	100	400

(a) Develop a table of observed and expected frequencies for this problem.

(b) Calculate the sample χ^2 Value.

(c) State the null and alternative hypotheses.

(d) At $\alpha = 0.05$, test whether brand share is the same across the four regions.

(3 × 4 = 12 weightage)

Part D

Answer the **compulsory** *question.*
6 weightage.

18. A tea company appoints four sales men A, B, C and D and observes their sales in three seasons-summer, winter and monsoon. The figures (in lakhs) are given in the following table :

Season	Salesmen				Season's
	A	B	C	D	Total
Summer	36	36	21	35	128
Winter	28	29	31	32	120
Monsoon	26	28	29	29	112
Salesmen's Totals	90	93	81	96	360

(a) Do the salesmen significantly differ in the performance ?

(b) Is there significant difference between the seasons ?

(6 weightage)