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<ul> <li>2<sup>nd</sup> Semester Regular Examination 2018-19 BUSINESS RESEARCH BRANCH: MBA Max Marks : 100 Time : 3 Hours Q.CODE : F513</li> <li>Answer Question No.1 (Part-1) which is compulsory, any EIGHT from Part-II and any TWO fr Part-II.</li> <li>2<sup>nd</sup> The figures in the right hand margin indicate marks.</li> <li>2<sup>nd</sup> The figures in the right hand margin indicate marks.</li> <li>2<sup>nd</sup> Only Short Answer Type Questions (Answer All-10)</li> <li>a) Write Central limit theorem.</li> <li>b) Narrate Level of signiliance.</li> <li>c) Find sample size such that the probability of sample mean differing from population mean by not more than <sup>1</sup>/<sub>4</sub> thof S.D is 0.95.</li> <li>d) A random sample of 100 articles taken from a batch of 2696 articles contains 5 defective articles. Find 99% upper confidence limit for the proportion of defective articles in the whole batch.</li> <li>e) If 2<sup>-2</sup> 2.58, population S.D = 15 and sample size = 112, then find sample error.</li> <li>f) A simple random sample of size 16 is drawn without replacement from a finite population of 50 units. If the number of defective units in the population be 5, find standard error of p.</li> <li>g) If p.&amp; p. are the proportions of two random samples of sizes 40 &amp; 50 drawn from two populations with p<sub>1</sub>=0.05 &amp; p<sub>2</sub> = 0.03, then find standard error of the difference of two sample proportions.</li> <li>h) Two samples having sizes 8 and 10 with respective means 5 &amp; 3. If their S.D are 3 &amp; 4 respectively, then find standard error of difference of two sample means.</li> <li>j) The population size is 2,3,4,5,6. How many samples of size three can be selected, if samples are drawn without replacement from the population.</li> <li>j) If sample size=10, sample mean=0.24, population mean=0.25 and sample S.D = 0.02, then find test-statistic t.</li> <li>200</li> <li>200</li> <li>200</li> <li>201</li> <li>201</li> <li>201</li> <li>202</li> <li>201</li> <li>203</li> <li>201</li> <li>204</li> <li>204</li> <li>205</li> <li>205</li> <li>305</li> <li>515</li> <li>52</li> <li>52<th>F</th><th>Registratio</th><th>n No :</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></li></ul>	F	Registratio	n No :										
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210 $\frac{\textbf{Food} \textbf{A}}{\textbf{Food} \textbf{B}} \frac{49}{52} \frac{53_{210}}{55} \frac{51}{52} \frac{52}{53} \frac{2}{50} \frac{47}{50} \frac{52}{54} \frac{53}{54} \frac{53}{53} 210$ [Table value of t at $\alpha$ =.05 for 7 d.f is 2.36] The table given below shows the data obtained during an epidemic of Cholera: $\frac{\textbf{Attacked}}{\textbf{Inoculated}} \frac{\textbf{Not attacked}}{42} \frac{232}{748}$	a)	A manufa confirmed that 18 we The increa	cturer claim to specifica ere faulty. Te ase in weigh	ned that ations. A est his c nts due	t at leas An exan claim at	st 95% nination $\alpha$ =.05	of the of a s	equipr ample	nent w of 200	vhich be s pieces of	supplied t f equipme	o a factory nt revealed	(6 x 8
Food B5255525350545453[Table value of t at $\alpha$ =.05 for 7 d.f is 2.36]c) The table given below shows the data obtained during an epidemic of Cholera: $\boxed{ Inoculated } 42 $ 232Not inoculated } 106 748				-	53	51	52	47	50	52	53		
The table given below shows the data obtained during an epidemic of Cholera:AttackedNot attackedInoculated42232Not inoculated106748		210	E I U		210			_ 0		<u> </u>		210	210
Inoculated42232Not inoculated106748	c)						ied du	ring an	epiden	nic of Cho	lera:		
Not inoculated 106 748		Incould	tod			acked					ked		
						;							
Test the effectiveness of inoculation in preventing the attack of cholera. 210				of inoc			enting	hê atta				210	210

- d) Weights in Kg. of 10 students are 38,40,45,53,47,43,55,48,52,49. Can we say that the variance of the distribution of weights of all students from which the above sample of 10 students are drawn is equal to 20 square Kgs?
  [ Chi aguara value at v=0.05 % of fig.16.02]
  - [Chi-square value at  $\alpha$ =0.05 & 9d.f is 16.92]
- e) The mean breaking strength of the cables supplied by a manufacturer is 1800 with a S.D 100. By a new technique in the manufacturing process, it is claimed that the breaking strength of the cables have increased. In order to test this claim a sample of 50 cables is tested it is found that the mean breaking strength is 1850. Can we support the claim at α=0.01?
- f) Akash Institute claimed that all its students get 80% marks on an average in competitive test. Hence mark percentage of 10 students are selected at random as given below. Test the claim at  $\alpha$ =0.05 by using sign-test.

Roll N	o. 1	5	13	21	26	35	42	50	62	74
Marks	82	75	80	90	92	74	84	85	79	80

- g) Explain the merits and limitations of an observation method in collecting material with examples.
- h) Explain various considerations in developing a sample design.
- i) Justify that under what circumstances exploratory research design is ideal.
- j) Distinguish between qualitative and quantitative research.
- k) Explain the differences between nominal and ordinal scales.
- I) Distinguish between parametric and non-parametric tests. 210 210 210 210 210 210 210 210

## Part-III

## Only Long Answer Type Questions (Answer Any Two out of Four)

Q3

A company appoints 4 salesmen and observes their sales in 3 seasons. The figures (in lacs) (16) are given in the following table.

Season	Salesmen								
Season	Α	B	С	D					
Summer	36	36	21	35					
Winter	28	29	31	32					
Rainy	26	28	29	29					

		Carry out an analysis of variance at $\alpha$ =.05. [ Table value of F at $\alpha$ =.05 for d.f (6,3) is 8.94 and for d.f (6,2) is 19.33]									
210	Q4	<ul> <li>210 210 210 210 210 210 210 210 210</li> <li>The following is an arrangement of the BPL and APL card holders, who are standing in queue before a control shop for their rations:</li> <li>BBBBBBBBAAAAABBBBAAABBBBBAABBBBAA</li> <li>Where B=BPL Cards &amp; A=APL Cards.</li> <li>Use one sample run test at α=.05 and test whether cards are arranged at random by the control dealer.</li> <li>[ Table value of Z at α=.05 at two tailed test=1.96]</li> </ul>									
210	Q5	210 What is b hypothesis	•	210 hypothesis? De	210 scribe role, cha	210 racteristics, type	210 s and sources of	210 <b>(16)</b>			
	Q6	Critically a	ppreciate on dif	ferent types of re	port and comme	nt on essentials o	f a good report.	(16)			
210		210	210	210	210	210	210	210			