Course Name:	Business Research Methods	Course Code	C204
Roll No.		Marks	60
Total No. of Questions	6	Duration	3 Hours
Total No. of printed pages	3	Date	12-09-2023

Course Outcome Statements:

CO1: DEFINE the basic concepts related to research, research problem, hypothesis, research design, attitude measurement, scaling, sampling, & data processing.

CO2: EXPLAIN the concepts taught through the syllabus of business research methods

CO3: MAKE USE OF processes pertaining to research design, data collection, questionnaire designing, sampling, data processing and hypothesis testing for finding solution to the business research problems.

CO4: EXAMINE the results of various statistical tests from an analytical perspective

CO5: APPRAISE the results of statistical tests for taking business decision.

CO6: DEVELOP a research report consisting of business research problem, research design, sample design, data collection, data analysis and conclusion.

Instructions: -	Marks	BL	CO
Q. No 1 (All Questions are Compulsory)			

Q. No.		Questions	Marks	BL	CO
Q. 1					
	a.	In the realm of agricultural science, ensuring consistent and optimal crop yields is paramount. In this case study, we explore the production of five wheat varieties across five different plots of land. The scientist in charge claims that there is no significant difference in the production of these varieties. The aim of this case study is to verify this claim and draw meaningful conclusions regarding wheat production.	6	Level 4	CO4

PLOTS	Variety A	Variety B	Variety C	Variety D	Variety E
1	500	500	300	250	550
2	600	400	200	300	450
3	200	200	600	400	350
4	400	400	500	450	350
5	200	500	400	500	250

Analyse the information given in the case and verify the claim at 5 % significance level

Q. No.		Questions	Marks	BL	CO
	b.	Dolo 650, a product of Micro Labs, was chosen as the focus of the market study. Dolo 650, an over-the-counter (OTC) medication, has recently been featured in television advertisements. The corporation asserts that the promotion has resulted in a 10% rise in Dolo 650 sales. On the other side, some have expressed fear that ads for medications like Dolo 650 tend to encourage self-medication, which is a concern, particularly among the medical community. There have also been worries that these advertisements can influence how doctors write prescriptions. The perception is that after the commercial was widely shown, doctors have stopped prescribing Dolo 650. **Decide** relevant key variables for designing questionnaire. .	6	Level 5	CO5

Q. 2		Answer **Any one** from the following.			
	a.	Trainees took aptitude test before and after their training and their results are reproduced below. The HRD manager claims that there is no significant difference in the abilities of Trainees after specific training **Evaluate** null and alternative hypothesis, assume data is normally distributed and use 5% level of significance to arrive at conclusion relevant to the above investigation	6	**Level 5**	CO5

Trainees	Score Before Training	Score After Training
A	75	70
B	70	77
C	46	57
D	68	60
E	68	79
F	43	64
G	55	55
H	68	77
I	77	76

	b.	A company is interested in verifying the claim that there is significant association between smoking habits and physical activity for the following data	6	**Level 5**	CO5

	Non-Smoker	Occasional Smoker	Regular Smoker	Total
Sedentary	60	20	70	150
Moderate	90	40	20	150
Active	80	30	10	120
Total	230	90	100	420

Evaluate the claim at 5 % significance level.

Q. 3		Answer **Any one** from the following.			
	a.	Claim is made that a machine is set to fill a small bottle with less than 9.0 grams of medicine. A sample of eight bottles revealed the following amounts (grams) in each bottle. **Examine** the claim at the 5% significance level.	6	**Level 4**	CO4

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Grams	8	8.8000	.22678	.08018

One-Sample Test

		Grams
Test Value = 9	T	-2.494
	Df	7
	Sig. (2-tailed)	.041
	Mean Difference	-.20000
	95% Confidence Interval of the Difference	Lower	-.3896
		Upper	-.0104

b	**Examine** the following data to construct the regression equation and find out the value of sales if adverting cost is 101		**6**		**Level 4**	**CO4**

Sales (Rs.)	100	90	85	92	90	84	88	90
Adv.	5	6	7	6	7	8	8	7

Q. 4		Answer **Any two** from the following.			
	a.	In an anti-malarial campaign in certain area, Quinine (Medicine) was administered to 812 persons out of 3,248. Below is the snap shot of the data and the output after running the statistical. Claim is made that there is no association between Treatment and Medical condition. **Construct** the null and alternative hypothesis and test the hypothesis at 5% level of significance.	**6**	**Level 3**	**CO3**

Treatment	Fever	No Fever	Total
Quinine	20	792	812
Non-Quinine	220	2,216	2,436
Total	240	3,008	3,248

	b	A company claims that there is no significant difference in wages of south and north region . Random samples of the 10 workers from south India show that their mean wages are Rs. 47 per week with standard deviation of Rs 3. A random sample of 15 workers from north india gives a mean wage of Rs 49 per week with standard deviation of Rs 5. **Construct** the null and alternative hypothesis and test the hypothesis at 5% level of significance	**6**	**Level 3**	**CO3**
	c.	A toothpaste manufacturing company wants to conduct customer satisfaction survey and they claim that every one person out of 4 uses their toothpaste paste. **Make use of** above information to get the sample size for the survey if confidence level is 95 % and tolerable error is 5%.	**6**	**Level 3**	**CO3**
Q. 5		Answer **Any two** from the following.			
	a.	**Summarize** the features and steps for designing the good questionnaire	**6**	**Level 2**	**CO2**
	b	**Explain** concept research design	**6**	**Level 2**	**CO2**
	c.	**Explain** the concept of Sampling techniques	**6**	**Level 2**	**CO2**
Q. 6		Answer **Any two** from the following.			
	a.	**Define** hypothesis testing	**6**	**Level 1**	**CO1**
	b	**What** are projective techniques	**6**	**Level 1**	**CO1**
	c.	**What** are the different methods of sample size calculations	**6**	**Level 1**	**CO1**