LOVELY PROFESSIONAL UNIVERSITY

Academic Task No. 3……

School: Mittal school of business

Faculty of Economics

Name of the faculty member: Mandeep Bhardwaj

Course Code: MGN 909

Course Title: DATA ANALYSIS USING SPSS

Program: B.Tech **Term: 118192**

Max. Marks: 30 **Is Rubric Applicable: YES**

Date of Allotment: 29-03-2019 **Date of Submission: 08-04-2019**

Sr. No	Nature of task	Objectives of Academic Activity	Topic Details	Evaluation Parameters	Expected outcomes
1	Individual (ONLINE)	To generate capability to analyze a situation and to decide to course of action based on the Class learning.	Each individual has given an assignment, which they need to analyze.	Assignment should be presentable & not matched with anyone.	Students will be able to develop their analytical skills, level of confidence and content knowledge.

ASSIGNMENT III

1. A) which test is suitable for the below problem? And why? (2)

B) State the hypothesis for the problem (1)

C) Statistical Outcome: TEST stat= -2.56, p value = 0.0106 & Interpret your result. (2)

Retaining Workers

DATA Xm19-00

Because of the high cost of hiring and training new employees, employers would like to ensure that they retain highly qualified workers. To help develop a hiring program, the human resources manager of a large company wanted to compare how long business and nonbusiness university graduates worked for the company before quitting to accept a position elsewhere. The manager selected a random sample of 25 business and 20 nonbusiness graduates who had been hired 5 years ago. The number of months each had worked for the company was recorded. (Those who had not quit were recorded as having worked for 60 months.) The data are listed below. Can the human resources manager conclude at the 5% significance level tha difference in duration of employment exists between business and nonbusiness graduates?

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See page 585 for our answer.

Duration of Employment (Months)

Business Graduates												
60	11	18	19	5	25	60	7	8	17	37	4	8
28	27	11	60	25	5	13	22	11	17	9	4	

Nonbusiness Graduates										
25	60	22	24	23	36	39	15	35	16	
9	60	29	16	22	60	17	60	32		

2. A) Which test is suitable for the below problem? And why? (2)

B) State the hypothesis for the problem (1)

C) Statistical Outcome: TEST stat= 2.29, p value = 0.0110 & Interpret your result. (2)

Comparing the Comfort of Two Midsize Cars

DATA Xm19-03

In an experiment to determine which of two cars is perceived to have the more comfortable ride, 25 people rode (separately) in the back seat of an expensive European model and also in the back seat of a North American midsize car. Each of the 25 people was asked to rate the ride on the following 5-point scale:

1 = Ride is very uncomfortable.
2 = Ride is quite uncomfortable.
3 = Ride is neither uncomfortable nor comfortable.
4 = Ride is quite comfortable.
5 = Ride is very comfortable.

The results are shown here. Do these data allow us to conclude at the 5% significance level that the European car is perceived to be more comfortable than the North American car?

	Comfort Ratings	
Respondent	European Car	North American Car
1	3	4
2	2	1
3	5	4
4	3	2
5	2	1
6	5	3
7	2	3
8	4	2
9	4	2
10	2	2
11	2	1
12	3	4
13	2	1
14	3	4
15	2	1
16	4	3
17	5	4
18	2	3
19	5	4
20	3	1
21	4	2
22	3	3
23	3	4
24	5	2
25	5	3

3. A) Which test is suitable for the below problem? And why? (2)

B) State the hypothesis for the problem. 1

C) Statistical Outcome: TEST stat= 15.20, p value = 0.0852 & Interpret your result. (2)

Consistency of a Container-Filling Machine, Part 1

DATA **Xm12-03** Container-filling machines are used to package a variety of liquids, including milk, soft drinks, and paint. Ideally, the amount of liquid should vary only slightly, since large variations will cause some containers to be underfilled (cheating the customer) and some to be overfilled (resulting in costly waste). The president of a company that developed a new type of machine boasts that this machine can fill 1-liter (1,000 cubic centimeters) containers so consistently that the variance of the fills will be less than 1 cubic centimeter. To examine the veracity of the claim, a random sample of 25 l-liter fills was taken and the results recorded. These data are listed here. Do these data allow the president to make this claim at the 5% significance level?

Fills				
999.6	1000.7	999.3	1000.1	999.5
1000.5	999.7	999.6	999.1	997.8
1001.3	1000.7	999.4	1000.0	998.3
999.5	1000.1	998.3	999.2	999.2
1000.4	1000.1	1000.1	999.6	999.9

4. A) Which test is suitable for the below problem? And why? (2)

B) State the hypothesis for the problem. 1

C) Statistical Outcome: TEST stat= 2.23, p value = 0.0134 & Interpret your result. (2)

Newspaper Recycling Plant

DATA Xm12-01*

It is likely that in the near future nations will have to do more to save the environment. Possible actions include reducing energy use and recycling. Currently (2007), most products manufactured from recycled material are considerably more expensive than those manufactured from material found in the earth. For example, it is approximately three times as expensive to produce glass bottles from recycled glass as from silica sand, soda ash, and limestone, all plentiful materials mined in numerous countries. It is more expensive to manufacture aluminum cans from recycled cans than from bauxite. Newspapers are an exception. It can be profitable to recycle newspaper. A major expense is the collection from homes. In recent years a number of companies have gone into the business of collecting used newspapers from households and recycling them. A financial analyst for one such company has recently computed that the firm would make a profit if the mean weekly newspaper collection from each household exceeded 2.0 pounds. In a study to determine the feasibility of a recycling plant, a random sample of 148 households was drawn from a large community, and the weekly weight of newspapers discarded for recycling for each household was recorded and is listed next. Do these data provide sufficient evidence to allow the analyst to conclude that a recycling plant would be profitable?

Weights of Discarded Newspapers

2.5	0.7	3.4	1.8	1.9	2.0	1.3	1.2	2.2	0.9	2.7	2.9	1.5	1.5	2.2
3.2	0.7	2.3	3.1	1.3	4.2	3.4	1.5	2.1	1.0	2.4	1.8	0.9	1.3	2.6
3.6	0.8	3.0	2.8	3.6	3.1	2.4	3.2	4.4	4.1	1.5	1.9	3.2	1.9	1.6
3.0	3.7	1.7	3.1	2.4	3.0	1.5	3.1	2.4	2.1	2.1	2.3	0.7	0.9	2.7
1.2	2.2	1.3	3.0	3.0	2.2	1.5	2.7	0.9	2.5	3.2	3.7	1.9	2.0	3.7
2.3	0.6	0.0	1.0	1.4	0.9	2.6	2.1	3.4	0.5	4.1	2.2	3.4	3.3	0.0
2.2	4.2	1.1	2.3	3.1	1.7	2.8	2.5	1.8	1.7	0.6	3.6	1.4	2.2	2.2
1.3	1.7	3.0	0.8	1.6	1.8	1.4	3.0	1.9	2.7	0.8	3.3	2.5	1.5	2.2
2.6	3.2	1.0	3.2	1.6	3.4	1.7	2.3	2.6	1.4	3.3	1.3	2.4	2.0	
1.3	1.8	3.3	2.2	1.4	3.2	4.3	0.0	2.0	1.8	0.0	1.7	2.6	3.1	

5. A) Which test is suitable for the below problem? And why? (2)

B) State the hypothesis for the problem. 1

C) Statistical Outcome: TEST stat= 4.06, p value = 0.0139 & Interpret your result. (2)

Comparing the Costs of Repairing Car Bumpers

DATA Xm14-02 North American automobile manufacturers have become more concerned with quality because of foreign competition. One aspect of quality is the cost of repairing damage caused by accidents. A manufacturer is considering several new types of bumpers. To test how well they react to low-speed collisions, 10 bumpers of each of four different types were installed on midsize cars, which were then driven into a wall at 5 miles per hour. The cost of repairing the damage in each case was assessed. The data are shown below.

a. Is there sufficient evidence at the 5% significance level to infer that the bumpers differ in their reactions to low-speed collisions?

b. If differences exist, which bumpers differ?

Bumper 1	Bumper 2	Bumper 3	Bumper 4
610	404	599	272
354	663	426	405
234	521	429	197
399	518	621	363
278	499	426	297
358	374	414	538
379	562	332	181
548	505	460	318
196	375	494	412
444	438	637	499

6. A) which test is suitable for the below problem? And why? (2)

B) State the hypothesis for the problem. 1

C) Statistical Outcome: TEST stat=1.96, p value = 0.1949 & Interpret your result. (2)

Nielsen Ratings

DATA Xm12-00*

Statistical techniques play a vital role in helping advertisers determine how many viewers watch the shows that they sponsor. Although several companies sample television viewers to determine what shows they watch, the best known is the A. C. Nielsen firm. The Nielsen ratings are based on a random sample of approximately 5,000 of the 110 million households in the United States with at least one television (in 2007). A meter attached to the televisions in the selected households keeps track of when the televisions are turned on and what channels they are tuned to. The data are sent to the Nielsen's computer every night from which Nielsen computes the rating and sponsors can determine the number of viewers and the potential value of any commercials.

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On page 336 we provide a solution to this problem.

The results from Sunday, April 1, 2007, for the time slot 9:00 to 9:30 P.M. have been recorded using the following codes:

Network	Show	Code
ABC	*Desperate Housewives*	1
CBS	*The Amazing Race 11*	2
NBC	*Deal or No Deal*	3
Fox	*Family Guy*	4
Television turned off or watched some other channel		5

Source: Televisionweek, April 7, 2007.

NBC would like to use the data to estimate how many of the households were tuned to its program *Deal or No Deal*.