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**UNIVERSITY OF PETROLEUM  
AND ENERGY STUDIES**



**End Semester Examination, May 2017**

**Program/course: BBA(FT)**

**Subject: Research method and report writing**

**Code : BBCQ123**

**No. of page/s: 5**

**Semester – IV**

**Max. Marks : 100**

**Duration : 3 Hrs.**

**Section A**

**1. Fill in the blanks.**

**(2x5)**

- I. If the Pearson correlation co-efficient R is equal to 1 then:
- There is a negative relationship between the two variables.
  - There is a positive relationship between the two variables.
  - There is a perfect positive relationship between the two variables.
  - There is no relationship between the two variables.

- II.  $R^2$  is the mathematical notation for:
- Pearson's Co-efficient of Correlation
  - The Co-efficient of Variation
  - Spearman's Co-efficient of Rank Correlation
  - The Co-efficient of Determination

- III. Regression analysis was applied to return rates of sparrow hawk colonies. Regression analysis was used to study the relationship between return rate (x: % of birds that return to the colony in a given year) and immigration rate (y: % of new adults that join the colony per year). The following regression equation was obtained.

$$Y = 31.9 - 0.34x$$

Based on the above estimated regression equation, if the return rate were to decrease by

10% the rate of immigration to the colony would:

- increase by 34%
  - increase by 3.4%
  - decrease by 0.34%
  - decrease by 3.4%
- IV. If the coefficient of determination is equal to 1, then the correlation coefficient
- must also be equal to 1

- b. can be either -1 or +1
  - c. can be any value between -1 to +1
  - d. must be -1
- V. With regard to hypothesis testing, Type II Error is
- a. Probability of Rejecting the Null Hypothesis When it is True
  - b. Probability of accepting the Null Hypothesis When it is True
  - c. Probability of Accepting the Null Hypothesis When it is False
  - d. None of these.
- VI. If a baseball coach calculates batting averages, what scale would be used?
- a. Interval scale
  - b. Ratio scale
  - c. Nominal scale
  - d. Ordinal scale
- VII. The coefficient correlation is the geometric mean of the two regression coefficients
- a.  $r = \sqrt{b_{xy} \times b_{yx}}$
  - b.  $r = b_{xy} \times b_{yx}$
  - c.  $r = \sqrt{\frac{b_{xy}}{b_{yx}}}$
  - d.  $r = \frac{b_{xy}}{b_{yx}}$
- VIII. When \_\_\_\_\_ the two regression lines are mutually perpendicular.
- a.  $r = -1$
  - b.  $r = 1$
  - c.  $r = 0$
  - d.  $r = \infty$
- IX. For the chi-square goodness of fit test data should not be in the form of
- a. Frequency
  - b. Percentage
  - c. Discrete
  - d. Continuous
- X. Formula for calculating sample size is (E=the maximum error allowed, Z= value from Z table,  $\sigma$ =standard deviation of population)
- a.  $n = \frac{Z\sigma^2}{E^2}$

- b.  $n = \frac{Z^2 \sigma^2}{E}$   
 c.  $n = \frac{Z^2 \sigma}{E^2}$   
 d.  $n = \frac{Z^2 \sigma^2}{E^2}$

### Section B

Answer any four questions

(5x4)

2. Explain Type-I and Type-II error in context of research study.
3. A company administered an intelligence test to all its employees for a long period of time. For all the 80,000 employees, the mean score was found to be 75 and the standard deviation 12. A researcher wishes to study the theory that the top line supervisors of the company are more intelligent than the average. For that, a sample of 50 supervisors is chosen randomly and their mean score is found. To test the theory, what should be the null and alternate hypothesis?
4. A real estate agent wishes to examine the relationship between the selling price of a home and its size (measured in square feet) A random sample of 10 houses is selected and regression model is given below:

$$\text{house price} = 98.24833 + 0.10977(\text{square feet})$$

Interpret regression coefficients.

5. With example explain the technique of selecting sample using stratified sampling method
6. Distinguish between Descriptive and Analytical research.

### Section C

Answer any three questions.

(10x3)

7. Explain the important property of chi-distribution. The manager of ABC ice-cream parlour has to take a decision regarding how much of each flavour of ice-cream he should stock so that the demands of the customers are satisfied. The ice-cream supplies claim that among the four most popular flavours, 62 percent customers prefer vanilla, 18 percent chocolate, 12 percent strawberry and 8 per cent mango. A random sample of 200 customers produces the results below. At the  $\alpha=0.05$  significance level, test the claim that the percentages given by the supplies are correct.

Flavour	Vanilla	Chocolate	Strawberry	Mango
Number of person preferring	120	40	18	22

8. Describe, in brief, the layout of a research report, covering all relevant points.

9. A sample of 200 bulbs made by a company gives a lifetime mean of 1540 hours with a standard deviation of 42 hours. Is it likely that the sample has been drawn from a population with a mean lifetime of 1500 hours? You may use 5% level of significance.
10. Following were the ranks given by three judges in a talent hunt competition. Determine which pair of judges has the nearest approach to common taste in talent.

Judge I:	1	4	3	5	2
Judge II:	1	3	5	2	4
Judge III:	3	2	5	4	1

### Section D

IIFT BBA (FT) programme has 260 students under it, both first and second year. There is one mess serving for all of these students. There are a few eating options outside in the local roadside Dhabas. It has been observed that many students not like the mess food. As a result, student frequently eat at the Dhabas outside IIFT.

Recently, a scheme of taking four meals under the plan of Rs. 1800 or two meals under the plan of Rs. 1200 was launched by the IIFT mess and some students have availed of the latter plan and some are planning to avail it. This has led to the identification, the various reasons because of which students are not taking mess food.

The students of IIFT conducted a comparative study of both IIFT mess and the Dhabas to find out the factors that could improve mess for the benefit of the student community at IIFT. It was felt that the result of the study could help the mess committee in coming up with some innovation plans to make it better.

A qualitative research was undertaken that helped in outlining the various attributes which could be incorporated in the design of the questionnaire. A sample of 35 students was taken. Among the various questions asked to differentiate the perception of Mess with Dhabas around IIFT, the following attribute were considered.

- 1.Test of food      2.Hygiene      3.Cost      4.Menu variety      5.Timings**

The following questions were asked incorporating the above attributes:

How do you rate IIFT mess/Dhabas on a scale of 1-5 on the following parameters?

(1=Extremely Unsatisfied, 2=unsatisfied, 3= Neutral, 4= Satisfied, 5= Extremely Satisfied)

S.No.	Parameters	IIFT Mess(X)	Dhabas (Y)
1.	Taste of food		
2.	Hygiene		

3.	Cost		
4.	Menu Variety		
5.	Timings		

The survey data on a sample of 35 respondents is collected and its mean and standard deviation is given in following table:

Mean	2.46	2.29	3.29	2.91	2.91	4.06	4.03	3.14	2.69	2.14
S.D.	1.20	1.20	0.96	0.70	1.09	0.84	0.79	0.88	0.72	0.81

It may be noted that the data on various  $X_1, X_2, \dots, X_5$  correspond to the ratings of five attributes for IIFT mess, where  $Y_1, Y_2, \dots, Y_5$  are the corresponding rating for Dhabas.

**Answer the following question: (30x1)**

**Identify the parameters on which the Dhaba food has an edge over the mess food. You may use 5 per cent level of significance.**