UNIVERSITY OF PETROLEUM & ENERGY STUDIES
End Semester Examination – MAY 2022

Program:BBA –ABD-IV
Semester:IV
Subject/Course: ADVANCED STATISTICS   **Max. Marks: 100**
Course Code: DSQT2004   **Duration: 3 Hours**

Q.No	Section A(multiple choice question)	Marks	COs
Q1.	i) Which of the following are types of correlation? a. Positive and Negative b. Simple, Partial and Multiple c. Linear and Nonlinear d. All of the above ii)If the values of two variables move in the same direction, _____ a. The correlation is said to be non-linear b. The correlation is said to be linear c. The correlation is said to be negative d. The correlation is said to be positive iii) In a Binomial Distribution, if p, q and n are probability of success, failure and number of trials respectively then variance is given by _____ a. np b. npq c. np^2q d. npq^2 iv) Binomial Distribution is a _____ a. Continuous distribution b. Discrete distribution c. Irregular distribution d. Not a Probability distribution v) Of the following sampling methods, which is a probability method? a. Judgement b. Quota	2* 10=20	CO1

c. Simple random

d. Convenience

vi) Increasing the sample size has the following effect upon the sampling error?

    a. It increases the sampling error

    b. It reduces the sampling error

    c. It has no effect on the sampling error

    d. All of the above

vii) The weights used in a quantity index are _____.

    a. Quantity

    b. Values

    c. Price

    d. None of the above

viii) Fisher's method of calculating the index number is based on the _____.

    a. Geometric mean

    b. Arithmetic mean

    c. Harmonic mean

    d. None of the above

ix) Sample is regarded as a subset of?

    a. Data

    b. Set

    c. Distribution

    d. Population

x) The difference between a statistic and the parameter is called:

    a. Non-random

    b. Probability

    c. Sampling error

    d. Random

Q2.	**Section : B**	5*4=20	CO2

i) Calculate the spearman's rank correlation coefficient of the data.

x	10	8	12	15	8	10
y	9	8	9	6	9	8

ii) Explain various kinds of sampling methods along with suitable examples.

iii) Most graduate schools of business require application for admission to take GMAT examinations. Scores on GMAT are roughly normally distributed with a mean of 527 and standard deviation of 112. What is the probability of an individual scoring above 500 on the GMAT?

iv) Two cards are drawn one by one with replacement from ten cards numbered 1 to 10. Find the expectation of the sum of points on two cards.

Section : C

Q3.

i) The chain base index numbers for sales of a certain type of scooter from the year 2010 to 2015 are as follows. Find fixed base index numbers.

year	2010	2011	2012	2013	2014	2015
Index no of sale	110	112	109	108	105	111

ii) Determine the equation of straight line, which best fits the data.

x	10	14	10	15	17	20	24
y	11	22	20	27	26	33	32

iii) A random variable X has the following binomial distribution. Find the probabilities

P($X less than 6$) & P($X greater than 3$)

X	0	1	2	3	4	5	6	7
P(X)	0	K	2K	2K	3K	K^2	$2K^2$	$7K^2 + K$

10*3=30 CO3

Section D

Q4.   15*2=30   CO4

i) Find partial correlation coefficients from $r_{12.3}$, $r_{23.1}$ & $r_{13.2}$

X1	22	15	27	28
X2	12	15	17	15
X3	13	16	12	18

ii) From the following data calculate price index numbers for 2019 with 2011 as base by i) Paasche's method   ii) Edge worth marshall's method

commodity	Base year (2011)		Current year 2019	
	price	quantity	price	quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25