

Roll No: -----

UNIVERSITY OF PETROLEUM  
AND ENERGY STUDIES



Mid Semester Examination, May 2017

Program/course: B.A (Public Policy and Administration)

Semester – IV

Subject: Quantitative Technologies and Research Methodology

Max. Marks: 100

Code : BAPP222

Duration : 3 Hrs

No. of page/s: 3

**Notes:** Mention Roll No at right top corner in the question paper.

2. No student will leave the room for one hour from the time of commencement of examination.
3. Please do not put your name anywhere.
4. Please do keep time factor in mind, and ALL THE BEST

**SECTION A (Maximum Marks 25)**

**Attempt all questions (maximum word limit -60 words).**

**Question 1)** Raman a final year student of bachelor's course in Public Policy and Administration is preparing for his dissertation study. Raman is not sure which sampling technique he shall use for the purpose of his study. For this, he has framed certain questions. Kindly help Raman in revising the concept of sample, sampling methods and sample size by answering his following queries:

- a) What is a 'Sample'? (1 mark)
- b) What is 'Population'? (1 mark)
- c) What is 'Sampling'? (1 mark)
- d) Why sampling is preferred over census? (2 marks)
- e) What are the steps in sample design? (2 marks)
- f) What are the three primary kinds of samples? (1.5 marks)
- g) What would be the required sample size in the following example-

**Example:** To estimate mean earnings in a population with an accuracy of Rs. 100 per year, using a 95% confidence interval and assuming that the standard deviation of earnings in the population is Rs. 1600.0, the required sample size is  $983: [(1.96)(\dots\dots/100)]$  squared. (1.5 marks)

**Question 2)** Developing an understanding on the concept Raman adopted few methods. These are presented below, in the form of examples. Identify which type of sampling method Raman has used in each case. (2.5 marks) Also, write your reason why you think that the example matches with your choice of identified sampling method. (2.5 marks) **(3\*5= 15)**

**Example 1.** Raman wanted to select 10 players randomly from a population of 100 for the purpose of his study. He made chits and wrote their names on it; fold them up, mix them thoroughly. After mixing the folded chits, then he pick ten.

**Example 2.** There are 100 students in the class. Raman for the purpose of his study want a sample of 20 from these 100. Raman have their names listed on a piece of paper in an

alphabetical order. Raman divided 100 by 20; he got 5 as an answer. Then he randomly selected one number between 1 and 5. Suppose the number Raman have picked is 4. Now considering 4 as starting number. Raman selected student number 4 as first unit of sample population. Then Raman selected every 5<sup>th</sup> name until he reached the last one, i.e number 100. Now Raman have list of selected 20 students from 100.

**Example 3.** Raman for the purpose of his study has made three groups with following specifications:

1. Anybody with ten years of education will be in group A,
2. between 10 and 20 years of education group B, and
3. between 20 and 30 years of education, in group C.

From each of these groups he randomly selected a given number of units, based on proportion like if group A has 100 persons while group B has 50, and C has 30; Raman decided to take 10% of each. Therefore, at the end Raman has sample units with 10 from group A, 5 from group B and 3 from group C.

## SECTION B

**All questions are compulsory (Maximum Marks 20)**

**Question 3.** Define Quantitative and Qualitative approach to research. (5 marks)

**Question 4.** Radhika is an inspiring researcher. She has chosen education as her area of research interest, keeping different approaches to research in consideration; she has outlined following statement as her research problem. Kindly refine the research problem statements outlined by Radhika and mention the main points on how to select (2.5 marks) and evaluate (2.5 marks) the research problem -

a) Research Problem (approach): “Comparison of the integrated curriculum and traditional curriculum of primary level” (Experimental).

Refined Research Problem: ----- (2.5 marks)

b) Research Problem (approach): “Role of education policies in development of literacy” (Historical).

Refined Research Problem: ----- (2.5 marks)

c) Research Problem (approach): “A study on the impact of self-financing scheme on the development of education” (Descriptive).

Refined Research Problem: ----- (2.5 marks)

d) Research Problem (approach): “A study on the role of education through Information and communication technology on sustainable development” (Empirical).

Refined Research Problem: ----- (2.5 marks)

## SECTION C (Maximum Marks 35)

**Question 5.** Define research process. Diagrammatically elucidate the different steps involved in a research process. (2+ 8 marks)

**Question 6.** Diagrammatically elucidate the research preparation and presentation process. (7 marks)

**Question 7.** Rashmi has developed a summated rating scale as a set of attitude value for measuring Attitude towards a female coach .To each of which she expect that subjects should respond with some degree of agreement or disagreement (the intensity). Then scores of the items of such a scale would be summed or averaged to yield an individual's/subject attitude score. In her questionnaire each statement usually calls for a response by checking one of the five response categories- Strongly approved, Approved, Undecided, Disapproved , Strongly Disapproved.

i) What do you call the type of scale Rashmi has prepared for her study? (3 marks)

ii) Kindly following the approach Rashmi has taken frame a questionnaire with 10 statements. Out of these 10 statements, frame 5 positive statements and assign weights for Positive attitude (favorableness of the attitude) (2.5+2.5 marks). Frame 5 negative statements and assign weights for the negative attitudes (unfavorableness of the attitude). (2.5+2.5 marks)

Once your data collection instrument is ready after point (ii) .Now you will check for-

- a) Does it has the quality of measurement in terms of – consistency, dependability, repeatability, trustworthiness?
- b) Whether the measuring instrument measures what it purports to measure in terms of – Content (face), Construct and Criterion (Concurrent & Predictive).

iii) What are the above process as described in point ‘a’ and ‘b’ called. (2.5+2.5 marks)

#### **SECTION D (Max Marks 20)**

**Question 8.** Write down various steps of questionnaire design process.

**Question 9.** Fill the blanks in the below mentioned table of measurement scales:

Scale	Basic Characteristics	Common Examples	Marketing Examples	Permissible Statistics	
				Descriptive	Inferential
	Numbers identify & classify objects	Social Security nos., numbering of football players		Percentages, mode	Chi-square, binomial test
<b>Ordinal</b>		Quality rankings, rankings of teams in a tournament	Preference rankings, market position, social class	Percentile, median	Rank-order correlation, Friedman ANOVA
	Differences between objects		Attitudes, opinions, index	Range, mean, standard	Product-moment correlation, t
<b>Ratio</b>		Length, weight		Geometric mean, harmonic mean	Coefficient of variation