

GUJARAT TECHNOLOGICAL UNIVERSITY**Ph.D. - SEMESTER- I EXAMINATION – SUMMER 2013****Subject Code: PH0001****Date: 20-07-2013****Subject Name: Research Methodology (Pharmacy)****Time: 12.00 pm - 02.30 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Subject-relevant literature/book is permitted to be carried in the exam hall (Use of E-Books, Laptops, Mobiles & I-pads is strictly prohibited).

- Q.1** Answer in Brief:
- | | | |
|------------|---|------------|
| i | State the different types of sampling briefly. | 2x5 |
| ii | What is of more value to the corporate world – basic, fundamental, or applied research? Justify your reasoning. | = |
| iii | Why is it important to conduct a literature review before embarking on a research study? Identify the types of review methods which can be used. | 10 |
| iv | Outline the steps that a researcher needs to follow to prepare a good research report. Are the criteria different for different kinds of reports? Explain with examples. | |
| v | A lot of business magazines conduct surveys, for example, the best management schools in the country; the top ten banks in the country; the best schools to study in, etc. What do you think of these studies? Would you call them research? Why/why not? | |
- Q.2**
- | | | |
|----------|--|----------|
| A | A dairy products company wants to introduce a new flavoured variant of its existing brand of cheese and check whether it is more preferred by consumers. The company sells its products through nearly 320 retail outlets in and around City A and monitors the sales regularly. It decides to do a limited test of the variant by placing it in eight retail outlets in City A. The sales test period for the new variant would be July to September. It proposes to analyse the sales data from the eight outlets before taking a decision. <ol style="list-style-type: none"> a) Identify the design that is being used. b) Comment on its validity. c) Can the design be improved? If yes, how? | 8 |
| B | In a study, a diet drink manufacturer finds that young women are more health conscious and are looking at low calorie options. Thus, any communication or advertisement for the product has to emphasise the health aspect. The purchase probability is also influenced by their educational level and the nature of their profession. Other factors such as available brands, celebrity endorsement and dieticians' recommendations also have an impact on them. <ol style="list-style-type: none"> (i) Identify the research problem and hypotheses. (ii) Identify and classify the variables under study. (iii) Is it possible to generate a theoretical framework for the study? | 8 |
| C | Explain research integrity. What do you understand by research misconduct? What are the ethical issues a researcher should keep in mind while undertaking research work. Give some examples of unethical practices of research. | 7 |

Q.3 A Table 1 (Output from a researcher's work) – Response and analysis of faculty towards student evaluation of teachers (SET) across Demographic Variables

Dimensions of Faculty Demographics	Category	Count (%)	Mean	F/t-Value	p- value
Age Category	Below 35 yrs.	108(21)	5.59	3.56	0.014
	36-45 yrs.	198(40)	5.34		
	46-55 yrs.	143(29)	5.34		
	Above 55 yrs.	51(10)	5.62		
Gender	Male	355(71)	5.38	0.694	0.405
	Female	145(29)	5.53		
Academic Stream	Science/Engineering	150(30)	5.57	1.29	0.275
	Social Sciences	239(48)	5.37		
	Arts/Humanities	111(22)	5.33		
Highest Qualification	Basic Entry Qualification	88(18)	5.43	1.03	0.311
	Ph. D.	412(82)	5.42		
Designation	Lecturer	167(33)	5.60	0.638	0.529
	Reader	204(41)	5.39		
	Professor	129(26)	5.24		
Total Experience	below 7 yrs.	74(15)	5.55	1.04	0.373
	7-15 yrs.	160(32)	5.64		
	16-21 yrs.	86(17)	5.19		
	above 21 yrs.	180(36)	5.29		
Designation Experience	below 7 yrs.	246(49)	5.41	0.364	0.779
	7-15 yrs.	198(40)	5.60		
	16-21 yrs.	35(7)	4.60		
	above 21 yrs.	21(4)	5.29		
Organization Experience	below 7 yrs.	145(29)	5.44	1.72	0.161
	7-15 yrs.	177(35)	5.63		
	16-21 yrs.	60(12)	5.01		
	above 21 yrs.	118(24)	5.30		
Organization Category	Central University	109(22)	5.62	3.44	0.064
	State University	391(78)	5.37		
Nature of Organization	General University	388(78)	5.46	0.723	0.396
	Tech./Spl. Character Uni.	112(22)	5.28		
Organization Structure	Affiliating University	342(68)	5.40	0.247	0.619
	Residential University	158(32)	5.48		

Questions:

- (1) Explain the above output.
- (2) What is your inference from the above table
- (3) Explain where the F and t test should be used in the above table

Q.3 B Table 1: KMO and Bartlett's Test

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Kaiser- Meyer – Olkin Measure of Sampling Adequacy.	.540
Barlett's Test of Sphericity Aprox. Chi-Square	44.930
Df	21
Sig.	.002

Table 2: Rotated Component Matrix for Infrastructural Facilities

Infrastructural facilities	Components	
	F1	F2
Improved Social Infrastructure	-.773	.207
Higher cost due to poor infrastructural facilities	.696	.078
Adequate transportation facilities	.498	-.001
Availability of adequate Infrastructural facilities	-.371	-.223
Frequent Power cuts	.101	-.726
Adequate power supply	-.030	.641
Power cuts adversely affect the production	.324	.525

Table 3: Total Variance Explained for Infrastructural Facilities

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.593	22.756	22.756	1.593	22.756	22.756	1.583	22.610	22.610
2	1.301	18.591	41.347	1.301	18.591	41.347	1.312	18.737	41.347
3	.992	14.171	55.517						
4	.957	13.665	69.182						
5	.846	12.088	81.270						
6	.746	10.652	91.922						
7	.565	8.078	100.000						

Question: The above tables 1, 2 and 3 outline the results obtained from primary data. The data were analysed with the help of Factor Analysis using Principal Components Analysis with Varimax Rotation. The primary data were collected from 131 industrial units on several infrastructural items stated in table 2 in statement forms on a 5-point scale, ranging from 5 as strongly agree and 1 as strongly disagree. Interpret the table 1, 2, and 3.

Q.3 C There are a number of graphic presentation forms. Which would you recommend to show each of the following? Why? **5**

- a) A comparison of changes in average annual per capita income for country A and country B from 1990 to 2000.
- b) The percentage composition of average family expenditure patterns, by major types of expenditure for families whose heads are under the age of 35 compared with families whose heads are 55 or older.

Q.4 **Answer Precisely** (no description required):

- i** Level of Significance
- ii** Non-parametric test
- iii** Standard Error
- iv** Reliability
- v** Degrees of Freedom
- vi** Coefficient of Determination
- vii** Sampling Frame
- viii** Likert Scale
- ix** Ordinal Scale
- x** Impact Factor

1x1
=
10
