

<p>vi. A variable that is presumed to cause a change in another variable is known as:</p> <ul style="list-style-type: none"> a. Discontinuous variable b. Dependent variable c. Independent variable d. Intervening variable 		CO1
<p>vii. Which of the following can best be described as a categorical variable?</p> <ul style="list-style-type: none"> a. Age b. Annual income c. Grade point average d. Religion 		CO1
<p>xiii . “There is no relationship between higher motivation level and higher efficiency” is an example of which type of hypothesis?</p> <ul style="list-style-type: none"> a. Alternative b. Null c. Correlation d. Research 		CO4
<p>ix. Hypothesis test may also be called as:</p> <ul style="list-style-type: none"> a. Informal test b. Significance test c. Moderating test d. t-test 		CO4
<p>x. How many times the students appear in the research class is the example of _____.</p> <ul style="list-style-type: none"> a. Intensity b. Space c. Frequency d. Direction 		CO4
<p>xi. Departmental stores selected to test a new merchandising display system is the example of</p> <ul style="list-style-type: none"> a. Quota sampling b. Convenience sampling c. Judgmental sampling d. Purposive sampling 		CO1
<p>xii. Personal interviews conducted in shopping malls are known as.....</p> <ul style="list-style-type: none"> a. Mall interviews b. Mall intercept interviews c. Brief interviews 		CO2

	<p>d. None of the given options</p> <p>xiii. Which one of the following sets is the measure of central tendency? a. Mean, standard deviation, mode b. Mean, median, standard deviation c. Arithmetic mean, median, mode d. Standard deviation, internal validity, mode</p> <p>xiv. A list of questions which is handed over to the respondent, who reads the questions and records the answers himself is known as the: a. Interview schedule b. Questionnaire c. Interview guide d. All of the given options</p> <p>xv. A small scale trial run of a particular component is known as: a. Pilot testing b. Pre-testing c. Lab experiments d. Both a & b</p> <p>xvi. Which is not a source of existing statistics? a. Government b. International agencies c. Personal interviews d. Private sources</p> <p>xvii. Statistics is used by researchers to a. Analyze the empirical data collected in a study b. Make their findings sound better c. Operationally define their variables d. Ensure the study comes out the way it was intended</p> <p>xviii. SSE in ANOVA is known as a. Sum of square of error b. Sum of square explained c. Both a and b d. Solid side effect</p> <p>xix. Factor analysis can be used for which of the following? a. Data reduction b. Scaling c. Educational data mining d. Business management</p> <p>xx. Which of the following does multivariate analysis include? a. Factor analysis b. Cluster analysis c. MDS d. All of the above</p>	<p>CO4</p> <p>CO3</p> <p>CO4</p> <p>CO4</p> <p>CO4</p> <p>CO4</p> <p>CO4</p> <p>CO4</p>	
SECTION B			
	Attempt any six questions	(5x6)	

Q 2	In research when a researcher is used the following tools: (i) Factor analysis (ii) Conjoint analysis (iii) Discriminant analysis (iv) Cluster analysis		CO4
Q 3	Indicate the type of measurement scale you would use for each of the following characteristics. Why did you choose the scale you did? Develop the appropriate question for each characteristic and the scale chosen. (i) Color of a dishwasher (ii) Age of a TV (iii) Occupation (iv) Brand Loyalty (v) Readership of a newspaper		CO5
Q 4	Suggest suitable sampling technique/ methods for the following situations: a) To study post watching behavior of television commercials b) To study the perceptions of quality consciousness among production engineers in automobile industry c) To study the attitude of general public towards packaged food items d) To study the students behavior towards introduction of dress code in college		CO1
Q 5	Suggest a research & research design in the following situation: (i) An international auto-fuel additive is planning to enter Indian market (ii) A company marketing a very successful health-drink in the USA wants to know whether Asia is the right market for its product.		CO2
Q 6	A foreman thinks that the low efficiency of the machine tool operators is directly linked to the high level of fumes emitted in the workshop. He would like to prove this to his supervisor through a research study. Suggest a suitable research study and also justify.		CO1
Q 7	What is a questionnaire? Can it be used in all situations? Why /why not? Support your answer with suitable examples.		CO3
Q 8	Use post coding for classifying the responses for the question “When I see a Porsche automobile, it makes me think of.....”		CO3

Responses

- 1 'how much fun I'd have if I owned one'.
- 2 'how unfair our social system is that only a few people have enough money to afford a car like that'.
- 3 'racing'.
- 4 'small cars and how dangerous they are'.
- 5 'the U.S. balance of payments'.
- 6 'what a ball it would be to drive'.
- 7 'my brother, because he's a sports car nut'.
- 8 'how much the insurance must cost to own one'.
- 9 'rich people'.
- 10 'how well I like my Datsun 280ZX'.
- 11 'all those Pittsburgh steelworkers who are laid off'.
- 12 'what a pain they must be to work on'.
- 13 'my wife fainting if I drove one home'.
- 14 'going to a movie'.
- 15 'sticking out my thumb and hitching a ride'.

SECTION-C

Attempt any five questions

(10x5)

Q 9 You are the HRD manager with ABB (India) has recently taken over a major unit in Kolkata. You are sent on a posting there and are given the task of introducing a new operation scheme which your parent organization feels will improve efficiency. But you perceive during your stay that there is an underlying dissatisfaction amongst the employees and it is essential to gauge their views and opinion about the takeover and their expectations before introducing the scheme.

Questions:

- i. What kind of research study should you undertake? Define the objectives of his research.
- ii. Do the stated objectives have scope for a qualitative research?
- iii. Which method would you recommend and why?

(4)
(3)
(3)

CO5

Q 10 A soft drink manufacturer has recently launched a new drink and wants to determine whether men and women like or do not like its taste. For this purpose, a survey is conducted and 100 men and 80 women are randomly selected, asked to consume the sample drink and opine on the taste. The results of the survey are tabulated here.

People who	Men	Women
Like the taste	63	54
Did not like the taste	37	26

Is the difference between the proportion of men and women who like the taste of the drink significant? Test at $\alpha=0.05$.

CO4

Q 11 The life expectancy in 9 regions of India in 2012 and in 11 regions of India in 2017 was as given in the table below:

CO5

Regions	Life Expectancy(in years)	
	2012	2017
1	42.7	54.2
2	43.7	50.4
3	34	44.2
4	39.2	49.7
5	46.1	55.4
6	48.7	57
7	49.4	58.2
8	45.9	56.6
9	55.3	61.9
10		57.5
11		53.4

It is desired to confirm,

i) Whether the variance in life expectancy in various regions in 2012 and 2017 is same or not.

(ii) Whether the average life expectancy in various regions in 2012 and 2017 is same or not.

(5)

(5)

Q 12

The price of shares of Bank of Florida at the end of trading each day for the last year followed the normal distribution. Assume there were 240 trading days in the year.

CO4

The mean price \$42.00 per share and the standard deviation was \$2.25 per share.

(i) What percent of the days was the price over \$45.00? How many days would you estimate?

(ii) What percentage of the days was the price between \$38.00 and \$40.00?

(iii) What was the stock's price on the highest 15 percent of days?

Q 13 The following information about 200 households were collected during January 2017 and August 2017. In January 2017, the respondents were asked whether they plan to purchase a solar rooftop. In August, how many actually purchased was noted down.

	Actually purchased		
Planned to purchase	Yes	No	Total
Yes	10	40	50
No	6	144	150
Total	16	184	200

Find the probability of number of respondents who,

- (i) Planned to purchase a solar rooftop.
- (ii) Actually purchased a solar rooftop.
- (iii) Planned to purchase and actually purchased.

(3)
(3)
(4)

CO4

Q 14 A random sample of students of Uttarakhand was selected and asked their opinions about autonomous colleges. The results are given below. The same number of each gender was as included within each class-group. Test the hypothesis at the 5% level that opinions are independent of the class groupings:

Class	Numbers		Total
	Favoring autonomous Colleges	Opposed to autonomous Colleges	

CO4

BBA	120	80	200		
B.Tech.	130	70	200		
MBA	70	30	100		
Ph.D.	80	20	100		
Total	400	200	600		

(Given that 5% value of χ^2 for 2 d.f. and 3 d.f. are 5.991 and 7.82 respectively)