Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM & ENERGY STUDIES
End Semester Examination (Online) – Dec, 2021

Program: B.Com (BMI) **Semester: III**
Subject/Course: Research Methodology **Max. Marks: 100**
Course Code: DSRM 2001 **Duration: 3 Hours**

Section-A

1.	What is research report?	**2**	**CO1**
2.	Algebraic sum of the deviation of the set of values from their arithmetic mean is. (a) 1 (b) 0 (c) Mean (d) Infinite	**2**	**CO1**
3.	Which one of the following is an ideal measure of dispersion. (a) Range (b) Quartile Deviation (c) Mean deviation about Mean (d) Standard Deviation	**2**	**CO1**
4.	Absolute zero exist in (a) Nominal scale (b) Ordinal scale (c) Ratio scale (d) Interval scale	**2**	**CO1**
5.	What is sampling frame?	**2**	**CO1**
6.	What value should r (correlation coefficient) be to have a perfect positive relationship between x and y?	**2**	**CO1**
7.	We review the relevant literature to know: (a) What is already known about the topic (b) What concepts and theories have been applied to the topic (c) Who are the key contributors to the topic (d) All of the above	**2**	**CO1**
8.	A sample of 900 items is taken from a population with S.D. 15. The mean of the sample is 25. Test whether the sample has come from a population with mean 26.8. Which test should be applied for testing process in this situation? (a) t-test (b) Z-test (c) $\chi 2$ test (d) None of these	**2**	**CO2**

9.	What is the decision regarding the H_0 and H_1 when the test statistics value is greater than the critical value? (a) Reject the null hypothesis in favor of the alternative hypothesis (b) Retain/accept the null hypothesis instead of the alternative hypothesis (c) Information is not enough to give any decision (d) None of the above	**2**	**CO2**
10.	What is the median and mode for the following data: 12, 12, 23, 36, 37, 45, 45, 45, 45, 56, 56, 67, 78, 90.	**2**	**CO2**

Section-B

Q.No	**Question**	**Marks**	**COs**
11.	Define type-I and type-II error with an example.	5	CO1
12.	Discuss the difference between correlation and regression.	5	CO2
13.	Discuss the difference between population and sample.	5	CO2
14.	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 hypothesis?	5	CO3

Section-C

15.	Define any four of the following (a) Null Hypothesis (b) Alternative Hypothesis (c) Systematic sampling (d) Cluster sampling (e) Quota sampling (f) Simple random sampling (g) Convenience sampling	10	CO2
16.	From the following data, compute Karl Pearson's correlation coefficient and comment on it. **Labor cost (In Rs.)** 10 12 14 15 19 **Price of ready product** 40 41 48 60 50	2.5*4=10	CO3
17.	A sample of 400 male students is found to have a mean height 67.47 inches. Can it be reasonably regarded as a sample from a large population with mean height 67.39 inches and standard deviation 1.30 inches? At 5%level of significance the tabulated value of Z= ±1.96. **'OR'** Discuss the layout of research report?	10	CO3

Section-D

18.

ABC Manufacturing Company had produced a herbal tooth powder five years back and was marketing the same in rural Punjab. The company is about 20 years old and is producing various toiletry products in Punjab. It had a name in the rural markets of Punjab. The herbal powder was launched only five years back and had shown a compound annual growth rate of 18 per cent. The CEO of the company, Mr Avtar Singh, was thinking of introducing the herbal tooth powder in the urban areas of Punjab.

Mr Singh got a preliminary research done with regard to the tooth powder market. The results of this research indicated that generally, people in urban areas preferred toothpaste instead of tooth powder. This was more so in case of young people below the age of 20 years. Mr Singh had a meeting with senior officials of the company and decided to get a research study conducted from a marketing research company with the following objectives:

- To estimate the proportion of population that used tooth powder.
- To understand the demographic and psychographic profile of people who used tooth powder.
- To understand the reasons for not using tooth powder.
- To get an understanding of the media habits of both the users and non-users of tooth powder.

The research team in the marketing research company defined the users of tooth powder as those who had bought tooth powder in the last six months. In order to select the users of tooth powder they conducted a preliminary study. A sample of 500 respondents was taken from Amritsar, Jalandhar, Ludhiana and Patiala. The results of the study indicated that out of the 500 respondents selected randomly, 20 per cent were below the age of 20. Out of the remaining 400 respondents, 30 per cent refused to participate in the study. Out of the remaining sample 60 per cent did not use tooth powder, 30 per cent bought it only once in a year or two and only 10 per cent of the respondents bought it at least once in six months. The cost of sampling 500 respondents was ₹40,000/-.

The company wanted to select 200 users from both Amritsar and Ludhiana, whereas 100 respondents were to be selected from Jalandhar and Patiala each. The remaining 300 users were to be selected from the remaining urban/ semi-urban towns of Punjab. In brief, the marketing research company wanted a total sample of 900. It was argued that a large sample should be taken from larger cities.

A total budget of ₹4,00,000/- was allocated for the research, out of which ₹2,50,000/- was for the purpose of field work. One of the members of the research team indicated that the total budget for the field work would not be sufficient to get the desired number of users of tooth powder. He suggested that chemist shops and 'General *Kirana* Stores' could be contacted for identifying the users.

	A) How would you define the population and the sampling frame in this case? Will the money allocated for the fieldwork be sufficient to get the desired size of the sample from various towns of Punjab as mentioned in the case?	15	CO4
	B) If The Amount is not sufficient, How many users can be contacted with he given budget? Would it be advisable to contact general *Kirana* Stores and *Chemist* shops for identifying the users?	15	