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# Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



## I SEMESTER M.TECH (ALL BRANCHES)

### END SEMESTER EXAMINATIONS, NOV/DEC 2015

#### SUBJECT: RESEARCH METHODOLOGY AND TECHNICAL COMMUNICATION [HSS 501] REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

#### Instructions to Candidates:

- ❖ Answer **ANY THREE FULL** questions in PART A.
- ❖ PART B is compulsory.
- ❖ Missing data may be suitable assumed.

#### PART A

- 1A.** "Knowing what data are available often serves to narrow down the problem itself as well as the technique that might be used". Explain the underlying idea in this statement in the context of defining a research problem. (03)
- 1B.** The management of a local restaurant wants to determine the average monthly amount spent by the households in the restaurants. Some households in the target market do not spend anything at all, whereas other houses spend as much as \$300 per month. Management wants to be 95 percent confident of the findings and does not want an error to exceed plus or minus \$5. What sample size should be used to determine the average monthly household expenditure? (03)
- 1C.** Determine the size of the sample for estimating the true weight of the cereal containers for the universe with  $N= 5000$  on the basis of the information that the variance of weight= 4 ounces on the basis of past records and the estimate should be within 0.8 ounces of the true average weight with 99% probability. Will there be a change in the size of the sample if we assume infinite population in the given case? If so, explain by how much? (04)
- 2A.** Two researchers have referred the following sources of information for writing a report. Cite the same as references as per Harvard referencing style: (2+2+2=6)
- (a) Journal paper titled the impact of lean practices on inventory turnover; authored by Krisztina Demeter and Zsolt Matyusz, 2011, published in the International Journal of Production Economics, volume number 133, issue no. 1, page numbers 154-163.
  - (b) Conference proceedings titled Assessment of Technical Manpower Requirements in Agriculture Sector in India; authored by Balagopal G Menon, Biswajit Mahanty and DRama Rao, at the 30<sup>th</sup> International Conference of System Dynamics Society, held at St.Gallen, Switzerland between July 22-26, 2012.
  - (c) Cite the below research information in APA style: Book on Design and analysis of experiments by Douglas C. Montgomery, published by John Wiley and sons, New York in 2005.

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- 2B.** List the four components of a good research design? Is single research design suitable in all research studies, justify your answer? (04)
- 3A.** What is the meaning of measurement in research? What difference does it make when the measure is in terms of nominal, ordinal, interval or ratio scale? Explain with suitable examples. (1+3=4)
- 3B.** "Empirical research in India in particular creates so many problems for the researchers". State the problems that are usually faced by such researchers. (02)
- 3C.** List the important limitations of testing the hypotheses. What precaution the researcher must take while drawing inferences as per the results of the said tests? (2+2=4)
- 4A.** Clearly explain the difference between the collection of data through questionnaires and schedules. (03)
- 4B.** Explain the terms patents, copyrights and trademarks with suitable examples. (03)
- 4C.** Distinguish between:  
(a) Convenience and purposive sampling (04)  
(b) Systematic and stratified sampling.

## PART B (COMPULSORY)

- 5.** Identify a hypothetical research problem in your area of interest and answer the following:
- (a) Give the problem statement and frame the research questions and objectives. (03)
- (b) Design and develop a conceptual model and frame the hypotheses. (03)
- (c) Which sampling and data collection method would be appropriate, and why? (02)
- (d) Explain the expected results and significance of this research. (02)