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JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- October 2019

M.Sc Ist Semester

COURSE CODE: L-18MS1BT114

MAX. MARKS: 25

COURSE NAME: Research Methodology and Inferential Statistics

COURSE CREDITS: 3

MAX. TIME: 1.5 Hr

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Use of calculator is allowed.

Part A: Answer the following Questions.

1. Define research problems. Discuss the main issues which should be consider by the researcher while formulating the research problems. [3] [CO-1]
2. Write a note on project execution and data analysis [3] [CO-2]
3. "Interpretation is a fundamental component of research process", explain. Why so? [3] [CO-5]
4. Explain the significance of a research report and narrate the various steps involved in writing such a report. [4] [CO-5]
5. What are the different forms in which a research work may be reported? [2] [CO-5]

Part B: Q.1 Attempt any two of following [CO-3] 2x2 = 4

- a) How expected value and Standard Deviation for a discrete Random Variable can be calculated from its probability distribution?
- b) Write a short not on any two of following Central Limit Theorem, Student's *t*-distribution, Chi-Square Distribution
- c) Explain any three of following terms: Research and statistical hypothesis, Null and alternate hypothesis, Types I and II errors in hypothesis testing, P value and level of significance

Q. 2 A manufacturer of television tubes from past experience knows that the average life of tube is 2000 hours with standard deviation of 200. A sample of 100 tubes has an average life of 1950. A quality control official is interested to ensure that sample belong to same population. [CO-3]

- a. What would be type of test, null and alternate hypothesis? [2]
- b. Test at 0.05 level of significance whether the sample came from the same population. And state your inference. (Given $Z_{tab} = +_1.96$ for two tail, and $Z_{tab} = +_1.645$ for single tail test) [4]