**MAJOR EXAMINATION**

M.Tech –**CSE/MTA/Mecha./Nano/EST/ ( 3rd-SEMESTER):** SESSION **2022-23**

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| Course Code: **MCSC-201 / MMTA-301 / EST-303 / MMTR-301** | Duration: **180 Min.** |
| Course Name: **Research Methodology / Research Methodology and Technical Writing,** | Maximum Marks: **75** |

***Instructions:***

1. *Clearly state assumptions wherever necessary.*
2. *Attempt* ***any 10 questions***

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| **Q. No.** | **Questions** | **MM** | **CO** | **BL** |
| **1** | Define research, research methodology, and the benefits of research methodology ? | ***7.5*** | *CO1* | *BL1* |
| **2** | What are the important factors to be consider in research; also list and explain types of research ? | ***7.5*** | *CO1* | *BL2* |
| **3** | Describe two tail test and one tail test with example? | ***7.5*** | *CO1* | *BL4* |
| **4** | Describe t-test or chi-square test? Explain difference between parametric and non-parametric tests? | ***7.5*** | *CO2* | *BL3* |
| **5** | Explain in detail the process of reviewing the literature? What are predatory journals and how to identify and avoid them? | ***7.5*** | *CO2* | *BL4* |
| **6** | Define goodness of measurement scales and levels of measurements? | ***7.5*** | *CO2* | *BL2* |
| **7** | Describe hypothesis, parameters of hypothesis and errors in hypothesis testing? | ***7.5*** | *CO3* | *BL2* |
| **8** | Define h-index, i10-index, and q-index? The citations received by an author’s published papers is listed below, determine his h-index and i10-index? Citations: ***[ 38, 16, 31, 2, 16, 5, 7, 8, 9, 4 ]*** | ***7.5*** | *CO4* | *BL4* |
| **9** | Write the properties of co-variance and explain when is median preferred over mean to represent a set of values? | ***7.5*** | *CO4* | *BL3* |
| **10** | Define kurtosis and determine mean, median, mode, range, standard deviation, and skewness for the data given below?  Data: ***[ 25, 20, 34, 45, 34, 22, 25, 46, 30, 25, 26, 37, 25, 45 ]*** | ***7.5*** | *CO4* | *BL4* |
| **11** | Define **Z-score** and modified **Z-score**? Explain why is modified Z-score preferred? | ***7.5*** | *CO4* | *BL3* |
| **12** | What do you meant by plagiarism and self-plagiarism? How can we check plagiarism in a document/manuscript? | ***7.5*** | *CO3* | *BL3* |
| **13** | Define steps involved in compiling a LaTeX (journal/conference) manuscript (.tex) in to (.pdf) document and how is compiling a LaTeX thesis/dissertation different from compiling a manuscript. Explain the use of **beamer** and **standalone** class in LaTeX? | ***7.5*** | *CO5* | *BL4* |
| **14** | Explain in brief the working or use of **any five** commands / software / package given below:   1. git clone <url> 2. git status 3. git add . 4. git branch 5. git commit \_\_\_ 6. git push 7. git pull 8. git log | ***7.5*** | *CO5* | *BL4* |
| **15** | Explain in brief the working or use of **any five** commands / software / package given below:   1. inkscape 2. mendley 3. pgfplots 4. \addplot table [] {file.csv}; 5. \bibliographystyle{\_\_\_\_\_} 6. \nocite{\*} 7. markdown 8. trunitin | ***7.5*** | *CO5* | *BL4* |
| **16** | A Restaurant having average sales of 500 tea cups per day. Because of the development of bus stand nearby, it expects to increase its sales. During the first 12 days after the start of the bus stand, the daily sales were as under:  **550, 570, 490, 615, 505, 580, 570, 460, 600, 580, 530, 526**  On the basis of this sample information, can one conclude that the Restaurant’s sales have increased? *Use 5 per cent level of significance and the value of t from t-distribution table for 11 degrees of freedom is t = 1.796* | ***7.5*** | *CO5* | *BL4* |
| **17** | Describe stages of research methodology? Also desscribe problems encountered by researchers in India? | ***7.5*** | *CO3* | *BL2* |