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Reg. No. : .....

Name : .....

Ph.D. ENTRANCE EXAMINATION, NOVEMBER 2022

FACULTY OF ENGINEERING AND TECHNOLOGY

COMPUTER SCIENCE AND ENGINEERING

Time : 3 Hours Max. Marks : 100

Instructions **:**

1) *Answer **any ten** questions each from* Section ***A*** *and* ***B.***
2) *Each question carries **5** marks.*
3) *No additional Answer sheets will be provided.*
4) *Candidates should clearly indicate the section, Question number in the answer booklet.*

Section – A

Research Methodology

Answer any **ten** questions. All Questions carry equal marks.

1. What are the characteristics of research? Explain how quantitative research differ from qualitative research.

2. What do you mean by hypothesis and describe the process of hypothesis testing?

3. Explain the various steps involved in research process.

4. What is a research design? Describe the different types of research designs.

5. Explain the importance of literature survey while conducting research.

6. What is scientific method of research? Differentiate between scientific and non-scientific methods.

7. Explain the importance of bibliography in writing a research report.

8. List the useful methods to find a legitimate research problem.

9. Is hypothesis necessary for the research? Comment on the use of null hypothesis.

10. Briefly explain the mathematical tools for the analysis in research methodology.

11. What points will you keep in mind while preparing a research report? Explain.

12. How are computers used as a tool in research? Explain with examples.

13. State the problems encountered by researchers in India.

14. What is plagiarism?

15. Enumerate the different methods of collecting data.

(10 × 5 = 50 Marks)

Section – B

Computer Science and Engineering

Answer any **ten** questions. All Questions carry equal marks.

1. Briefly explain the different phases of a compiler.

2. What is normalization in DBMS?

3. Compare OSI model and TCP/IP protocol suite.

4. Illustrate how insertion and deletion operations are performed on binary search trees.

5. Compare internal and external sorting.

6. What is DMA? What are its advantages?

7. Using mathematical induction, prove that $n^3 + 2n$ is divisible by 3.

8. List the applications of stack and queue.

9. Compare divide and conquer and dynamic programming methodologies.

10. What do you mean by deadlock in operating systems? What are the four necessary conditions for a deadlock to occur?

11. What is demand paging? What are its advantages?

12. What are the issues in designing distributed systems?

13. Differentiate between associative and set associative cache mapping with examples.

14. Summarize the various pre-processing activities involved in data mining.

15. Differentiate between distance vector and link state routing algorithms.

(10 × 5 = 50 Marks)

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