

Assignment List

Practical - I (Compiler Construction)

M. Sc. – Semester-I

Session 2023-24

- 1) Define compiler and Language Processor. Discuss the structure of a compiler.
- 2) Explain the Evolution of Programming Language
- 3) Explain the phases of compiler. List the name of compiler construction tools.
- 4) Explain the applications of compiler technology.
- 5) What is Syntax-Directed Translation? List inherited and synthesized attributes with example.
- 6) What is parsing? Explain Top-Down parsing and Predictive parsing.
- 7) What is the role of the lexical analyzer explain it in detail.
- 8) Explain the Lexical-Analyzer Generator Lex.
- 9) Explain Syntax Analysis in details.
- 10) Explain Top Down parsing in detail with suitable example.
- 11) Explain Context-Free Grammars in details.
- 12) Explain three-address code in details.
- 13) Explain Stack Allocation of Space in details.
- 14) Explain Access to Non-local Data on the Stack in detail with its Types.
- 15) Write a brief note on the DAG representation of basic block.
- 16) Explain Optimization of basic block in details.



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Computer Architecture and Organization

Assignment List

M.Sc. Semester – I

Session 2023-24

1. Explain in detail the different layers used in Computer architecture.
2. What is hardware and software? What are their roles in computer design? Explain how they interact with each other.
3. What is instruction ? What are its types ? Explain each one with its formats.
4. What are addressing modes ? Explain different types of addressing modes with suitable example.
5. Explain the concept of pipelining in CPU design in detail.
6. Discuss control path design in detail.
7. What is RISC and CISC ? Difference between RISC and CISC and give their advantages and disadvantages.
8. Explain superscalar processors in detail.
9. What is storage device ? Explain the different storage technologies with an example .
10. Design a memory unit for 8 KB RAM with available chip of 2 KB RAM. Also design a decoder using address table method.
11. Design a memory unit of 16 KB RAM using suitable number of available 2 KB RAM. Give the suitable decoder design also.
12. What is virtual memory? Explain the concept of paging and segmentation.
13. Describe the daizy-chain priority interrupt system in detail.
14. What is PCI bus? Discuss the role of PCI bus in computer system organization.
15. Discuss the Transaction processing benchmark in detail .
16. What is DMA ? What are its advantages ? Explain the cycle-stealing mode of operation of DMA in brief.




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Assignment List

Session 2023-24

Practical - II (Research Methodology)

M. Sc. Semester-I

- 1) What is Research? And explain its types.
- 2) Differentiate between research methods and methodology.
- 3) Explain research process in detail.
- 4) What are the technique involved in defining a problem?
- 5) Write the different methods of data collection.
- 6) Explain the classification of data processing.
- 7) Describe the visual aids for quantitative data analysis.
- 8) Explain the data preparation and data analysis of analyzing textual data.
- 9) What is interpretation? What is the need of interpretation?
- 10) What are the different steps in report writing?
- 11) Write a mechanics of writing a research paper?
- 12) What are the precaution for writing a research report?
- 13) Explain the term 'Writing Scientific Report'.
- 14) Write notes on Revision and Refining.
- 15) What is the process for writing for international journal?
- 16) How can you make a good presentation even more effective?



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Assignment List
Session 2023-24
M. Sc. Semester-III
(Practical – I)
Paper-II (Software Engineering)

1. What is software? Give different characteristics of software and explain changing nature of software in detail.
 2. Explain role of software engineering and software myths in detail.
 3. Explain a) waterfall model b) spiral model.
 4. What is process? Explain process framework activities.
 5. What is requirement engineering? Explain functions used in requirement engineering.
 6. What is system modeling? How graphical model can be used to present software system.
 7. Write note on a) context model b) behavioral model
 8. What is design? Explain characteristics of good design.
 9. What is software testing? Explain fundamental testing goals.
 10. Explain a) white box testing b) black box testing.
 11. What is software quality? Explain its quality factors.
 12. Write note on design evolution and interface analysis.
 13. Explain a) software quality assurance b) formal technical review
 14. What is risk management? Explain strategies of risk management
 15. What is software Quality management? Explain 9000 quality standards.
 16. What is software risk? Explain RMMM plan.
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Assignment List
Practical-II (Mobile Computing)
M.Sc -Semister-III
Session (2023-2024)

1. Explain mobile computing Architecture.
2. What is Mobile Computing? Write different limitations of mobile devices.
3. What are the GSM services? Draw GSM architecture diagram and explain it in detail.
4. Explain Pocket Radio Service in detail. Give its features.
5. Explain spread spectrum in CDMA system.
6. Explain Tunneling and Encapsulation Route optimization.
7. Discuss methods of TCP-layer transmission for mobile network.
8. Explain IP and mobile IP network layer. Also explain how pocket delivery and handover management done.
9. What do you mean by data dissemination? Explain data dissemination broadcast model.
10. Discuss issues related to Quality of service (Qos).
11. Explain process of digital audio broadcasting.
12. Discuss various database Hoarding Techniques.
13. Explain the properties of MANETs.
14. Explain wireless sensor network in detail.
15. Explain Bluetooth-enabled devices network. Explain layers in Bluetooth protocol.
16. Explain in detail IRDA.



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Assignment List

M. Sc. Semester-II
Practical - I (Cloud Computing)
Session 2023-24

1. What is Cloud Computing? Explain the risks and challenges occurred in cloud Computing?
2. Explain the Cloud Delivery Models with suitable diagram?
3. What are the Cloud Enabling Technology? Write notes on Web Technology and Service Technology?
4. What are the Implementation levels of virtualization? Explain.
5. Explain the concept of Open Virtualization Format?
6. Describe the Features of Cloud and Grid Platforms?
7. Explain the Emerging Cloud Software Environments.
8. Explain the various Cloud Applications with examples.
9. What is Threat? Explain different Threat Agents in cloud Computing.
10. Explain Cloud Security Threats and attacks in details.
11. What are the Issues Occurs in Cloud Computing?
12. Explain Cloud Trends in Supporting Ubiquitous Computing.
13. What is Internet of Things? Write the Enabling Technologies for the Internet of Things?
14. Write a short note on: i) Future of Cloud TV ii) Future of Cloud Based Smart Devices.
15. Explain the Online Social and Professional Networking in detail.
16. Explain the term Docker at a Glance with example?



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Assignment List
Session 2023-24
M. Sc. Semester-II
Paper-III (R Programming)

1. Define vectors and various functions associated with vectors.
 2. What is matrix in R programming? Explain in detail.
 3. What do you mean Lists in R programming? Discuss in detail.
 4. Define data frames. Explain matrix like operations performed on data frames?
 5. Explain in detail the various looping structures in R programming?
 6. Explain Arithmetic and Boolean Operations and values with example.
 7. Explain return values and the functions associated with it.
 8. What do you mean by recursion? Explain Quicksort implementation.
 9. What do you mean by Calculating Probability? Explain in detail with example.
 10. Explain various calculus functions in detail with examples.
 11. Explain linear algebra operations on vectors and matrices.
 12. Explain the concept of reading files with example.
 13. Explain workhouse of R base Graphics in detail.
 14. Explain the process of customizing graphs and functions associated with it in detail.
 15. What are the different probability distributions? Explain in detail with examples.
 16. What is Correlation and Covariance? Explain in detail with examples.
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M.Sc. Semester-IV (Computer Science)

Session 2023-2024

Unit I

1. Explain different techniques of Artificial Intelligence.
 - i. Question Answering
 - ii. Tic Tac Toe
2. What is Artificial Intelligence? Explain water jug problem in details.
3. Explain:
 - i. Breadth First Search
 - ii. Depth First Search
4. Explain A* algorithm with example.
5. What is problem reduction? Explain AO* algorithm.
6. What is Best-first search process? Explain in detail.
7. Describe Hill climbing algorithm. What are its limitations?

Unit II

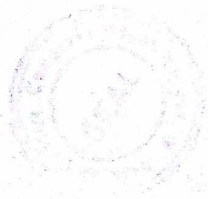
1. Explain issues in Knowledge Representation.
2. Differentiate between Forward versus Backward Reasoning.
3. What is predicate logic? Explain resolution in predicate logic.
4. Explain Expert system in detail.
5. Write and explain unification algorithm with suitable example.

UNIT III

1. What is game playing? Define various strategies of game playing.
2. Explain minimax search procedure in game playing.
3. Explain Hierarchical planning in detail.
4. What is goal task planning? Explain in detail.
5. Explain the following:
 - i. alpha - beta cut offs.
 - ii. Goal task planning.

UNIT IV

1. What is understanding? Explain understanding as constraint satisfaction.
2. Describe pattern recognition in detail.
3. Explain natural language processing in detail.
4. What is parallel and Distributed AI? Explain psychological modeling.
5. Describe Semantic and Syntactic Analysis with example.



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M. Sc. Semester - IV

Parallel Computing (Paper – IV)

Assignment List

Session 2023-2024

1. Discuss the dichotomy of parallel computing platforms.
2. Describe the communication costs in parallel machines.
3. What are the limitations of memory system performance?
4. Explain the network topologies in parallel computing.
5. Write notes on principles of parallel algorithm design and explain its preliminaries.
6. How to perform decomposition techniques? Explain.
7. What are the characteristics of task and interactions?
8. Explain One-to-All Broadcast and All-to-One reduction.
9. What is the performance metrics for parallel systems?
10. Explain the building blocks send and receive operations.
11. Write the principles of message passing programming.
12. What are the collective communication and computation operations?
13. Explain matrix-matrix multiplication.
14. Explain the binary exchange algorithm in FFT.
15. Describe parallel depth-first search.
16. Describe the transpose algorithm in details.



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