

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)

B. Tech III Year I Semester Supplementary Examinations June 2026
AUTOMATA THEORY AND COMPILER DESIGN

Branch: CSE

Time: 3 Hours

Max. Marks: 70

Instructions:

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A					
1	a	Formulate Non-deterministic finite automata.	2M	CO1	BTL4
	b	List out the advantages of regular expressions.	2M	CO1	BTL1
	c	What are the types of LR parsers? Compare them.	2M	CO2	BTL2
	d	Distinguish between deterministic and nondeterministic PDA.	2M	CO2	BTL4
	e	Describe the multi head Turing Machine.	2M	CO3	BTL2
	f	How many phases does analysis phase consists define it?	2M	CO3	BTL1
	g	List limitations of Predictive parsers.	2M	CO4	BTL1
	h	Translate $x + y - (a * b) + c$ into three address code?	2M	CO4	BTL3
	i	Define Peephole optimization?	2M	CO5	BTL1
	j	Define flow Graph.	2M	CO5	BTL1
PART-B					
UNIT-I					
2	a	Construct a DFA to accept set of all strings ending with 0101 .	5M	CO1	BTL2
	b	State the conversion procedure for regular grammar into Finite Automata.	5M	CO1	BTL6
OR					
3	a	What are the applications of Pumping Lemma?	5M	CO1	BTL3
	b	Explain the Closure properties of Regular sets	5M	CO1	BTL2
UNIT-II					
4		Interpret simplification of the given grammar. Simplify the following CFG, $S \rightarrow aSb \quad S \rightarrow A \quad A \rightarrow cAd \quad A \rightarrow cd$	10M	CO2	BTL3
OR					
5	a	Discuss how CFGs are used to generate context free languages and provide an example?	5M	CO2	BTL1
	b	Define push down automata? Design PDA for the language $L = \{001\}$	5M	CO2	BTL2
UNIT-III					
6	a	Summarize the role of Lexical Analyzer in the compilation process.	5M	CO3	BTL3
	b	Explain the architecture and working of a Turing Machine with a neat diagram.	5M	CO3	BTL2
OR					
7		Explain LEX Tool with the structure of Lex Program.	10M	CO3	BTL1
UNIT-IV					
8		Explain in detail about YACC Parser generator tool.	10M	CO4	BTL2
OR					
9	a	Compare shift reduce parsing with LR parsing.	5M	CO4	BTL2
	b	Construct the predictive parser the following grammar: $S \rightarrow (L)a$ and $L \rightarrow L,S S$	5M	CO4	BTL1
UNIT-V					
10		Interpret optimization techniques on Basic Blocks with simple examples.	5M	CO5	BTL2
OR					
11		Explain in about DAG for register allocation with an example.	10M	CO5	BTL3

CODE: A1CS502T**R23****H.T.No:****RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN****(AUTONOMOUS)****B.Tech III Year I Semester Supplementary Examinations June 2026****Subject Name: COMPUTER NETWORKS****Time: 3 Hours****Branch: CSE****Max. Marks: 70****Instructions:**

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A					
1	a	What is the difference between Local Area Network (LAN) and Wide Area Network (WAN)?	2M	CO1	L2
	b	What are the key design goals of a computer network?	2M	CO1	L3
	c	What is Collision in data communication?	2M	CO2	L1
	d	Write about the twisted coaxial cables.	2M	CO2	L2
	e	What is store-and-forward packet switching?	2M	CO3	L1
	f	Mention any two differences between IPv4 and IPv6.	2M	CO3	L2
	g	What is congestion control in networking?	2M	CO4	L1
	h	What is User Datagram Protocol (UDP) and when is it preferred?	2M	CO5	L2
	i	What is MIME?	2M	CO6	L1
	j	What are cookies, and how do they affect web privacy?	2M	CO6	L2
PART-B					
UNIT-I					
2	a	Explain the concept of Protocol Layering and its advantages in network design.	5M	CO1	L2
	b	Explain broadband access networks.	5M	CO1	L4
OR					
3	a	Explain design goals of network protocols.	5M	CO1	L3
	b	Discuss the functions and importance of Network Protocols in communication.	5M	CO2	L2
UNIT-II					
4	a	Explain in detail about the Simplex Stop and Wait protocol.	5M	CO2	L2
	b	Differentiate between Go-Back-N and Selective Repeat Sliding Window Protocols.	5M	CO2	L3
OR					
5	a	Describe the various Framing methods used in the Data Link Layer with suitable examples.	5M	CO2	L3
	b	What are the various types of error detection methods?	5M	CO2	L4
UNIT-III					
6		What is packet fragmentation? Explain how it is handled in different networks.	10M	CO3	L2
OR					
7		Explain in detail about broadcast and multicast routings.	10M	CO3	L4
UNIT-IV					
8		Illustrate the Scenarios for establishing a connection using a Three-Way Handshake.	10M	CO4	L2
OR					
9		What is Remote Procedure Call (RPC)? Explain its working and importance.	10M	CO4	L2
UNIT-V					
10		What is peer-to-peer (P2P) networks? Explain their advantages and disadvantages.	10M	CO6	L3
OR					
11		What is electronic E-mail? Describe in brief about the two architectures of Email?	10M	CO5	L2

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN
(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations June 2026
Subject Name: INTRODUCTION TO ARTIFICIAL INTELLIGENCE

Branch: CSE

Time: 3 Hours

Max. Marks: 70

Instructions:

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A					
1	a	Define Artificial Intelligence?	2M	CO1	BTL1
	b	What are the main elements that define the structure of an agent?	2M	CO1	BTL1
	c	What are the characteristics of a well-defined problem?	2M	CO2	BTL1
	d	Define A* search algorithm.	2M	CO2	BTL1
	e	Differentiate between passive and active reinforcement learning.	2M	CO3	BTL2
	f	What are the main components of a language model?	2M	CO3	BTL1
	g	Define speech recognition and mention its primary goal.	2M	CO4	BTL1
	h	What is meant by image formation in computer vision?	2M	CO4	BTL2
	i	What are the main components of robot hardware?	2M	CO5	BTL1
	j	What is the difference between Weak AI and Strong AI?	2M	CO5	BTL2
PART-B					
UNIT-I					
2	a	Discuss the major foundations of Artificial Intelligence and their contribution to the development of intelligent systems.	5M	CO1	BTL2
	b	Explain the PEAS description of task environments with a suitable example.	5M	CO1	BTL2
OR					
3	a	Illustrate the timeline of AI development from symbolic reasoning systems to machine learning techniques.	5M	CO1	BTL2
	b	Explain the concept of rationality in intelligent agents.	5M	CO1	BTL2
UNIT-II					
4	a	Explain the formulation of the 8-puzzle problem in terms of states, actions, and goal test.	5M	CO2	BTL3
	b	Compare and contrast the different uninformed search strategies.	5M	CO2	BTL4
OR					
5	a	Explain about local search algorithms. Discuss Hill	5M	CO2	BTL4

		Climbing and Simulated Annealing with their advantages and drawbacks.			
	b	Discuss the components of a well-defined problem in artificial intelligence.	5M	CO2	BTL2
UNIT-III					
6	a	Compare Passive and Active Reinforcement Learning approaches. Provide suitable examples for each.	5M	CO3	BTL4
	b	What is Text Classification? Explain any two approaches used for text classification.	5M	CO3	BTL2
OR					
7	a	Explain about Policy Search in reinforcement learning. Discuss any two methods used for policy optimization.	5M	CO3	BTL2
	b	Describe the process of Information Extraction and the main tasks involved in it.	5M	CO3	BTL2
UNIT-IV					
8	a	Explain the concept of phrase structure grammars.	5M	CO4	BTL2
	b	Discuss the architecture and major components of a Machine Translation system.	5M	CO4	BTL2
OR					
9	a	Explain the methods used for reconstructing the 3D world from 2D images.	5M	CO4	BTL2
	b	Describe the approach of object recognition by appearance. What are its advantages and limitations?	5M	CO4	BTL4
UNIT-V					
10	a	Explain the importance of robotic perception. How do sensors help a robot understand its environment?	5M	CO5	BTL2
	b	Describe the major types of robotic software architectures and their respective advantages.	5M	CO5	BTL2
OR					
11	a	Explain the risks of AI in terms of autonomy, privacy, employment, and decision-making.	5M	CO5	BTL4
	b	Discuss different types of agent architectures and how they influence agent behavior.	5M	CO5	BTL2

**RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN
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**B.Tech III Year I Semester Supplementary Examinations June-2026
INTRODUCTION TO QUANTUM TECHNOLOGIES AND APPLICATIONS**

Time: 3 Hours

Branch: CSE

Max. Marks: 70

Instructions:

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A					
1	a	What is meant by 'superposition' in quantum mechanics?	2M	CO1	L1
	b	Define 'entanglement' and mention its significance in quantum technologies	2M	CO1	L1
	c	What is a Hilbert space in the context of quantum information?	2M	CO2	L1
	d	Define a qubit. How can photon polarization be used to represent a qubit?	2M	CO2	L1
	e	Why 'scalability' is an important requirement for a quantum computer?	2M	CO3	L1
	f	Name the four core conditions required for a functional quantum system.	2M	CO3	L1
	g	What is quantum gate? Give one example.	2M	CO4	L1
	h	What is quantum key distribution?	2M	CO4	L1
	i	List two emerging quantum career roles and required skillsets.	2M	CO5	L1
	j	What skills are essential for carriers in quantum computing?	2M	CO5	L1
PART-B					
UNIT-I					
2	a	Explain quantum states and quantum measurements. Discuss how the observer effect impacts measurement outcomes?	10M	CO1	L1
OR					
3	a	Outline the strategic and technological significance of quantum technologies for science and society	5M	CO1	L1
	b	Define uncertainty principle. What implications does it have for measurements at the atomic scale.	5M	CO1	L1
UNIT-II					
4	a	Compare spin-based and polarization-based qubits. Discuss advantages and challenges in physical implementations.	10M	CO2	L4
OR					
5	a	Mention the applications of photons as qubits.	5M	CO2	L2
	b	Why trapped ions are good choice for quantum systems?	5M	CO2	L2
UNIT-III					
6	a	Mention the advantages of quantum computing.	5M	CO3	L4
	b	How can quantum software reduce the impact of noise and error in quantum systems?	5M	CO3	L2
OR					
7	a	Explain the need for quantum error correction. Describe one basic error correction approach in quantum computing.	10M	CO3	L4
UNIT-IV					
8		Analyze the BB84 protocol in detail, explaining how it ensures secure key distribution using quantum principles.	10M	CO4	L6
OR					
9	a	What is quantum parallelism? Illustrate with an example how it accelerates problem-solving compared to classical computation.	10M	CO4	L5
UNIT-V					
10	a	Analyze the role of education and training in quantum workforce development.	6M	CO5	L4
	b	Write a short note on Amaravati Quantum Valley project.	4M	CO5	L4
OR					
11	a	Discuss India's preparedness and opportunities in the global quantum race. Suggest strategies for strengthening India's role.	10M	CO5	L4

RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN
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B.Tech III Year I Semester Supplementary Examinations June 2026

Subject Name: **SOFTWARE TESTING METHADODOLOGY**

Time: 3 Hours

Branch: CSE

Max. Marks: 70

Instructions:

1. Answer all 10 questions from Part-A. Each question carries two marks
2. Answer one full question from each unit in Part-B. Each full question carries 10 marks

PART-A					
1	a	What are the consequences of software bugs?	2M	CO1	L2
	b	Define Path Testing.	2M	CO1	L1
	c	What is a transaction flow graph?	2M	CO2	L1
	d	List any two transaction flow testing techniques	2M	CO2	L1
	e	What is a domain in software testing?	2M	CO3	L1
	f	What is Testability in domain testing?	2M	CO3	L1
	g	Define Flow Anomaly.	2M	CO4	L1
	h	What is a Regular Expression?	2M	CO5	L1
	i	Define State Graph.	2M	CO5	L1
	j	What is Node Reduction?	2M	CO6	L1
PART-B					
UNIT-I					
2	a	Explain the purpose and objectives of software testing.	10M	CO1	L2
		Explain the model for testing in software engineering.	10M	CO1	L2
OR					
3	a	Discuss predicates and path predicates with examples.	5M	CO1	L3
	b	Explain path sensitizing with a suitable example.	5M	CO1	L3
UNIT-II					
4	a	Explain the fundamentals of data flow testing.	5M	CO2	L2
	b	Explain various strategies used in data flow testing.	5M	CO2	L3
OR					
5	a	Discuss applications of data flow testing with examples.	5M	CO2	L4
	b	Explain data flow anomalies and their detection.	5M	CO2	L4
UNIT-III					
6	a	Discuss Nice and Ugly Domains with examples.	5M	CO3	L2
	b	Describe boundary testing in domain testing.	5M	CO3	L3
OR					
7	a	Explain domain errors and methods of detection.	5M	CO3	L4
	b	Analyze the relationship between domains and testability.	5M	CO3	L4
CO3					
8	a	Explain path products with examples.	5M	CO4	L2
	b	Explain path expression reduction techniques.	5M	CO4	L2
OR					
9	a	Construct and explain a decision table for a given problem.	5M	CO4	L3
		Compare decision tables and KV charts.	5M	CO4	L4
UNIT-V					
10	a	Discuss the concept of relations and matrix powers.	5M	CO6	L3
	b	Explain state graphs with suitable examples.	5M	CO6	L2
OR					
11	a	Compare good state graphs and bad state graphs.	5M	CO5	L4
	b	Explain the matrix representation of a graph.	5M	CO5	L3
