

**CODE: A1CS602****R23****H.T.No:****RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN****(AUTONOMOUS)****B. Tech III Year II Semester Regular Examinations APRIL 2026****CLOUD COMPUTING****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

<b>PART-A</b>					
1	a	Describe the XaaS service model.	2M	CO1	BTL2
	b	Classify the types of virtualization techniques.	2M	CO1	BTL4
	c	Assess the advantages of parallel data processing.	2M	CO2	BTL2
	d	Assess the performance of cloud platforms.	2M	CO2	BTL3
	e	Classify VM consolidation techniques.	2M	CO3	BTL3
	f	Assess data privacy issues in cloud computing.	2M	CO3	BTL2
	g	Describe fog computing architecture.	2M	CO4	BTL3
	h	Assess cloud-fog-edge architecture.	2M	CO4	BTL3
	i	Explain dew computing concepts.	2M	CO5	BTL3
	j	Describe IoHT and its applications.	2M	CO5	BTL3
<b>PART-B</b>					
<b>UNIT-I</b>					
2	a	Examine hybrid cloud and cloud bursting use case.	5M	CO1	BTL4
	b	Examine the benefits of cluster computing for scalability and availability.	5M	CO1	BTL4
<b>OR</b>					
3	a	Examine hybrid cloud and cloud bursting, and analyze how they enable flexibility, scalability, and efficient workload management across cloud environments.	10M	CO1	BTL3
<b>UNIT-II</b>					
4	a	Explain OpenStack provisioning workflow.	10M	CO2	BTL2
<b>OR</b>					
5	a	Compare SaaS, PaaS, and IaaS models.	10M	CO2	BTL4
<b>UNIT-III</b>					
6	a	Examine types of security attacks in cloud.	5M	CO3	BTL3
	b	Assess VM escape vulnerability.	5M	CO3	BTL3
<b>OR</b>					
7		Analyze cloud cartography methods and examine how they help in mapping, monitoring, and optimizing cloud resources and services.	10M	CO3	BTL3
<b>UNIT-IV</b>					
8		Evaluate fog computing architecture.	10M	CO4	BTL4
<b>OR</b>					
9	a	Examine advantages of fog computing for real-time systems.	5M	CO4	BTL4
	b	Compare MAUI and COMET frameworks.	5M	CO4	BTL4
<b>UNIT-V</b>					
10	a	Examine cold start problem in serverless computing.	5M	CO5	BTL3
	b	Examine role of 5G in cloud systems.	5M	CO5	BTL3
<b>OR</b>					
11		Analyze a case study of the Internet of Health Things and examine how it improves patient monitoring, data management, and healthcare service delivery while addressing associated challenges	10M	CO6	BTL4

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**CODE: A1CS603T****R23****H.T.No:****RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN****(AUTONOMOUS)****B. Tech III Year II Semester Regular Examinations APRIL 2026**Sub: **Cryptography & Network Security**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	Identify suitable security service for data confidentiality.	2M	CO1	L3
	b	What is a symmetric cipher model?	2M	CO1	L1
	c	Distinguish between modular arithmetic and normal arithmetic.	2M	CO2	L4
	d	Differentiate between GF(p) and GF(2 <sup>n</sup> ).	2M	CO2	L2
	e	Illustrate the steps involved in the Digital Signature Algorithm (DSA).	2M	CO3	L3
	f	Demonstrate the basic working of CMAC with an example.	2M	CO3	L4
	g	Explain the features of Pretty Good Privacy (PGP).	2M	CO4	L2
	h	Examine how Internet Key Exchange (IKE) supports secure communication.	2M	CO4	L3
	i	Analyze the differences between TLS and SSH protocols.	2M	CO5	L4
	j	How does TLS help prevent MITM attacks?	2M	CO6	L2

**PART-B****UNIT-I**

2	a	Explain transposition techniques with suitable examples.	5M	CO1	L3
	b	Describe the working of Data Encryption Standard (DES) algorithm in detail.	5M	CO1	L1

**OR**

3	a	Compare substitution and transposition techniques with suitable examples and analyze their strengths and weaknesses.	10M	CO1	L4
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**UNIT-II**

4	a	Illustrate RSA algorithm with the help of a numerical example.	5M	CO2	L3
	b	Describe elliptic curve operations over finite fields.	5M	CO2	L2

**OR**

5	a	Describe discrete logarithms and their importance in detail.	5M	CO2	L3
	b	Discuss man-in-the-middle attack in Diffie-Hellman algorithm in detail.	5M	CO2	L2

**UNIT-III**

6	a	Demonstrate the CMAC algorithm and explain its working with necessary steps.	10M	CO3	L3
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**OR**

7	a	Analyze the differences between HMAC and CMAC in terms of design, performance, and security.	10M	CO3	L3
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**UNIT-IV**

8		Analyze the role of IP Security policies and Security Associations in ensuring secure communication.	10M	CO4	L4
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**OR**

9	a	Apply Encapsulating Security Payload (ESP) to provide confidentiality and integrity in IPsec.	5M	CO4	L3
	b	Evaluate the advantages and limitations of IPsec in securing modern network communications.	5M	CO4	L4

**UNIT-V**

10	a	Evaluate the advantages and limitations of firewall technologies in modern networks.	5M	CO5	L4
	b	Analyze the architecture and working of TLS and its role in securing web applications.	5M	CO5	L4

**OR**

11	a	Apply firewall access control policies to restrict unauthorized network access with examples.	10M	CO6	L3
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**RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN**  
(AUTONOMOUS)

**B. Tech III Year II Semester Regular Examinations APRIL 2026**  
**Introduction to Machine Learning**

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	Identify the type of learning on Email spam detection system. Justify your answer.	2M	CO1	BTL3
	b	What is unsupervised learning? Give an example.	2M	CO1	BTL1
	c	Given $K = 3$ , classify a data point based on its nearest neighbors.	2M	CO2	BTL3
	d	How to identify best split using information gain for a given dataset?	2M	CO2	BTL2
	e	Name any two kernel functions.	2M	CO3	BTL2
	f	Differentiate between Hard Voting and Soft Voting in Ensembles.	2M	CO4	BTL4
	g	Apply the Silhouette Score concept to state its significance in clustering.	2M	CO5	BTL3
	h	Illustrate the role of the centroid in K-Means clustering.	2M	CO5	BTL3
	i	Identify any two Python libraries used for ML model deployment.	2M	CO6	BTL1
	j	Apply the concept of the k-Fold technique to state its purpose.	2M	CO6	BTL3
PART-B					
UNIT-I					
2	a	Explain how $R^2$ measures the goodness of fit in regression models?	5M	CO1	BTL2
	b	Given the actual values [3, 4, 5] and the predicted values [2, 4, 6], compute the $R^2$ score for the model by showing all necessary steps.	5M	CO1	BTL3
OR					
3	a	Given a dataset with input values $x = [1,2,3,4]$ and corresponding actual outputs $y = [2,4,6,8]$ , a linear regression model is defined by the equation $y=1.5x+1$ . Calculate the cost function?	10M	CO1	BTL3
UNIT-II					
4	a	A logistic regression model is defined by the equation $z=1.5x-0.5$ . For an input value $x=2$ , compute the value of $z$ , determine the probability $P(y=1)$ using the sigmoid function, and classify the output using a threshold of 0.5.	10M	CO2	BTL3
OR					
5	a	Analyze the challenges in selecting the best proximity measure for KNN.	5M	CO2	BTL3
	b	Discuss how KNN can be extended to handle multi-class problems.	5M	CO2	BTL2
UNIT-III					
6	a	Differentiate how kernel trick supports non-linear classification in SVM.	5M	CO3	BTL4
	b	Illustrate bagging technique with an example.	5M	CO3	BTL3
OR					
7	a	Illustrate the Gradient Boosting algorithm with a suitable example.	10M	CO4	BTL3

<b>UNIT-IV</b>																				
8		<p>Compute principal components for a small dataset.</p> <table border="1"> <thead> <tr> <th>Data Point</th> <th>X</th> <th>Y</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2</td> <td>4</td> </tr> <tr> <td>2</td> <td>4</td> <td>2</td> </tr> <tr> <td>3</td> <td>6</td> <td>4</td> </tr> <tr> <td>4</td> <td>8</td> <td>6</td> </tr> </tbody> </table> <p>Compute the mean of each feature. Center the dataset by subtracting the mean from each value. Calculate the covariance matrix of the centered data. Find the eigenvalues and eigenvectors of the covariance matrix. Identify the principal components. Project the data onto the first principal component.</p>	Data Point	X	Y	1	2	4	2	4	2	3	6	4	4	8	6	10M	CO5	BTL3
	Data Point	X	Y																	
1	2	4																		
2	4	2																		
3	6	4																		
4	8	6																		
<b>OR</b>																				
9	a	Apply K-Means clustering with K = 2 for the following 1D data points:2, 4, 10, 12	5M	CO4	BTL3															
	b	Compare Silhouette Score and Davies-Bouldin Index.	5M	CO4	BTL4															
<b>UNIT-V</b>																				
10	a	Evaluate the role of an activation function in a neural network.	5M	CO6	BTL5															
	b	Design a simple neural network model for image classification	5M	CO6	BTL3															
<b>OR</b>																				
11	a	Design a deployment strategy for a Medical Diagnosis ML model using Flask or Streamlit.	10M	CO6	BTL3															

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**RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN**

(AUTONOMOUS)

**B. Tech III Year II Semester Regular Examinations APRIL 2026****Natural Learning Processing**

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

<b>PART-A</b>					
1	a	List any two applications of NLP	2M	CO1	BTL3
	b	What is Dependency parsing?	2M	CO1	BTL1
	c	Why are features used in parsing?	2M	CO2	BTL2
	d	How does ATN differ from RTN?	2M	CO2	BTL3
	e	Summarize the operation of shift-reduce parsers.	2M	CO3	BTL2
	f	Explain deterministic parsing approach.	2M	CO4	BTL2
	g	Apply logical form representation to interpret a sentence meaning.	2M	CO5	BTL3
	h	Demonstrate parameter estimation in language modelling.	2M	CO5	BTL3
	i	Apply CLIR concepts to retrieve documents across languages.	2M	CO6	BTL3
	j	Apply summarization techniques to generate concise text output.	2M	CO6	BTL3
<b>PART-B</b>					
<b>UNIT-I</b>					
2	a	Explain the importance of NLP in modern computing.	5M	CO1	BTL2
	b	What are the challenges in natural language understanding?	5M	CO1	BTL2
<b>OR</b>					
3	a	Analyze different components of NLP systems and their functions.	10M	CO1	BTL3
<b>UNIT-II</b>					
4	a	Evaluate the efficiency of different parsing techniques.	10M	CO2	BTL3
<b>OR</b>					
5	a	Discuss the Shannon game and its relevance to NLP	10M	CO2	BTL3
<b>UNIT-III</b>					
6	a	Illustrate shift-reduce parsing with suitable derivation steps.	5M	CO3	BTL3
	b	Analyze differences between deterministic and non-deterministic parsing models.	5M	CO3	BTL3
<b>OR</b>					
7		Demonstrate shift-reduce parsing using suitable derivation steps.	10M	CO4	BTL3
<b>UNIT-IV</b>					
8		Differentiate statistical and neural language modelling approaches.	10M	CO5	BTL4
<b>OR</b>					
9	a	Apply logical form representation to capture sentence meaning.	5M	CO5	BTL3
	b	Compare different types of language models used in NLP applications.	5M	CO5	BTL4
<b>UNIT-V</b>					
10	a	Demonstrate document preprocessing techniques for information retrieval.	5M	CO6	BTL3
	b	Analyze differences between monolingual, CLIR, and MLIR retrieval models.	5M	CO6	BTL3
<b>OR</b>					
11		Critically assess tools, datasets, and resources supporting multilingual NLP applications.	10M	CO6	BTL4

**CODE: A1CS604a****R23****H.T.No:****RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN****(AUTONOMOUS)****B. Tech III Year II Semester Regular Examinations APRIL 2026****Object Oriented Analysis and Design****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

<b>PART-A</b>					
1	a	Define UML.	2M	CO1	BTL2
	b	What is a Use Case?	2M	CO1	BTL1
	c	Explain abstract class.	2M	CO2	BTL2
	d	Describe qualified association.	2M	CO2	BTL2
	e	Describe the purpose of interaction diagrams.	2M	CO3	BTL1
	f	What is an activity diagram?	2M	CO3	BTL2
	g	Explain Creator pattern.	2M	CO4	BTL2
	h	Describe the working of Observer pattern.	2M	CO4	BTL2
	i	Explain the concept of state transition.	2M	CO5	BTL2
	j	List the advantages of Iterator pattern.	2M	CO5	BTL3
<b>PART-B</b>					
<b>UNIT-I</b>					
2		Apply the concept of factoring use cases by restructuring a given complex use case into simpler and reusable components.	5M0	CO1	BTL3
<b>OR</b>					
3		Construct a class diagram for a real-world system (e.g., Library Management System) and illustrate different class relationships.	10M	CO1	BTL5
<b>UNIT-II</b>					
4		Analyze dependency relationship and evaluate its impact on modularity and maintainability.	10M	CO2	BTL4
<b>OR</b>					
5		Apply the concept of polymorphism in designing a system and demonstrate how it improves flexibility using UML diagrams.	10M	CO2	BTL3
<b>UNIT-III</b>					
6		Construct a state diagram for a real-world system.	10M	CO3	BTL6
<b>OR</b>					
7		Build a basic Object-Oriented Analysis and Design (OOAD) model for a given problem, including key classes and their interactions.	10M	CO3	BTL3
<b>UNIT-IV</b>					
8		Apply the concept of CRC cards to analyze a real-world application and construct class responsibilities and collaborations.	10M	CO4	BTL3
<b>OR</b>					
9	a	Analyze the structure of GoF design patterns and categorize them into creational, structural, and behavioral patterns with justification.	5M	CO4	BTL4
	b	Analyze the Dependency Inversion Principle (DIP) and examine its role in reducing tight coupling in layered architectures.	5M	CO4	BTL4
<b>UNIT-V</b>					
10		Compare the Decorator pattern with inheritance in extending object functionality dynamically, and evaluate their impact on flexibility and maintainability.	10M	CO5	BTL3
<b>OR</b>					
11		Design and develop a system using Decorator and Iterator patterns, and construct a solution that dynamically adds responsibilities and supports efficient traversal of collections.	10M	CO6	BTL64

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**RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN**

(AUTONOMOUS)

**B. Tech III Year II Semester Regular Examinations APRIL 2026**

Renewable Energy Sources

Branch: CSE &amp; ECE

**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 energy.	2M	CO1	BTL1
	b	List examples of conventional energy sources.	2M	CO1	BTL1
	c	List solar energy technologies.	2M	CO2	BTL1
	d	What are solar thermal devices?	2M	CO2	BTL1
	e	Define efficiency of PV cell.	2M	CO3	BTL1
	f	Define wind energy.	2M	CO4	BTL1
	g	List types of batteries.	2M	CO5	BTL1
	h	What is biomass energy?	2M	CO5	BTL1
	i	Define fuel cell.	2M	CO6	BTL1
	j	What is energy density?	2M	CO6	BTL1
PART-B					
UNIT-I					
2	a	Define energy and classify different energy sources.	5M	CO1	BTL2
	b	Apply methods to reduce energy consumption.	5M	CO1	BTL3
OR					
3	a	Explain the overview of non-conventional energy resources and their importance in modern energy systems.	10M	CO1	BTL3
UNIT-II					
4	a	Apply solar energy principles to design a solar water heating system for domestic use.	10M	CO2	BTL3
OR					
5	a	Define solar energy and solar radiation.	5M	CO2	BTL1
	b	Analyze advantages and limitations of solar energy.	5M	CO2	BTL3
UNIT-III					
6	a	Explain wind energy for electricity generation.	5M	CO3	BTL4
	b	Explain working of solar PV system.	5M	CO3	BTL3
OR					
7	a	Explain performance and durability of solar photovoltaic devices.	10M	CO4	BTL2
UNIT-IV					
8		Explain biomass energy conversion techniques and applications.	10M	CO5	BTL2
OR					
9	a	Describe types of batteries.	5M	CO4	BTL2
	b	Explain biomass energy for power generation.	5M	CO4	BTL2
UNIT-V					
10	a	Explain working of fuel cells.	5M	CO6	BTL2
	b	Explain concept to product development in energy systems.	5M	CO6	BTL3
OR					
11	a	Explain working of flywheel and supercapacitor energy storage systems.	10M	CO6	BTL2

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**RAVINDRA COLLEGE OF ENGINEERING FOR WOMEN**

(AUTONOMOUS)

**B. Tech III Year II Semester Regular Examinations APRIL 2026****Software Project Management**

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

<b>PART-A</b>					
1	a	What is effort estimation?	2M	CO1	BTL1
	b	What are the benefits of peer inspections?	2M	CO1	BTL1
	c	Define modern software management.	2M	CO2	BTL2
	d	What activities are carried out in the construction phase?	2M	CO2	BTL2
	e	Differentiate Major and Minor Milestones	2M	CO3	BTL3
	f	Draw the diagram for Evolution of planning fidelity	2M	CO4	BTL4
	g	List various quality indicators	2M	CO5	BTL2
	h	Define Computer-aided software engineering	2M	CO5	BTL3
	i	Explain about next generation cost model	2M	CO6	BTL1
	j	List the artifacts produced by the Software Architecture team	2M	CO6	BTL3
<b>PART-B</b>					
<b>UNIT-I</b>					
2	a	a) How does reducing software product size improve economics?	5M	CO1	BTL3
	b	b) Explain the importance of team effectiveness.	5M	CO1	BTL2
<b>OR</b>					
3	a	Evaluate the role of automation in improving productivity and quality.	10M	CO1	BTL3
<b>UNIT-II</b>					
4	a	Explain the importance of artifacts in software development.	5M	CO2	BTL3
	b	Discuss the purpose of the transition phase?	5M	CO2	BTL2
<b>OR</b>					
5	a	Discuss how risk is handled in iterative models.	5M	CO2	BTL3
	b	Differentiate between conventional and modern software engineering.	5M	CO2	BTL3
<b>UNIT-III</b>					
6	a	Differentiate between Major and Minor Milestones	5M	CO3	BTL4
	b	Demonstrate importance of Cost and Schedule Estimation	5M	CO4	BTL3
<b>OR</b>					
7	a	Illustrate Checkpoints and Milestones in software projects.	10M	CO3	BTL3
<b>UNIT-IV</b>					
8		Demonstrate factors of software project environment	10M	CO5	BTL3
<b>OR</b>					
9	a	Demonstrate the round-trip engineering of software project environment	5M	CO4	BTL3
	b	Demonstrate Management Indicators	5M	CO4	BTL4
<b>UNIT-V</b>					
10	a	Explain modern project profiles and discuss their key features	5M	CO6	BTL2
	b	Demonstrate the structure of software line of business organization	5M	CO6	BTL3
<b>OR</b>					
11	a	Demonstrate roles and responsibilities of software Architecture team	10M	CO6	BTL3

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