

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS INSTITUTION)**B. Tech III Year II Semester (R23) Regular End Semester Examinations, May- 2026****MACHINE LEARNING**

(Computer Science & Engineering)

Time: 3Hrs**Max Marks: 70**

Attempt all the questions. All parts of the question must be answered in one place only.

All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

S.No.	Question	Marks	CO	BL
1.	i) Differentiate between classification and regression.	1	1	1
	ii) How reinforcement learning is different from supervised and unsupervised learning?	1	1	1
	iii) Define distance measure with an example.	1	2	1
	iv) How does KNN work in classification?	1	2	1
	v) Comment on bias-variance trade-off.	1	3	1
	vi) Differentiate Bayesian Network and Naïve Bayes classifier.	1	3	2
	vii) Define Support Vector Machine (SVM).	1	4	1
	viii) What is kernel trick?	1	4	1
	ix) Define clustering and mention its types.	1	5	1
	x) State the working of K-Means clustering.	1	5	1
2(A)	(i) Illustrate how different types of datasets are used in Machine Learning tasks with practical examples.	6	1	3
	(ii) Discuss about the stages involved in the Machine Learning process in detail.	6	1	4
OR				
2(B)	Compare learning by rote, learning by induction and reinforcement learning.	12	1	3
3(A)	(i) Discuss on the performance evaluation of classification algorithms	6	2	2
	(ii) Explain about the Radius Distance Nearest Neighbor (RDNN) algorithm.	6	2	4
OR				
3(B)	Dataset with 9 points: - 5 points of class A: (1,1), (1,2), (2,1), (2,2), (1.5,1.5)- 4 points of class B: (4,4), (4,5), (5,4), (5,5). For query point (3,3), predict class using: a) K=1 b) K=3 c) K=5 d) K=7. Identify how predictions change with different K values.	12	2	3
4(A)	(i) Explain about the concept of Decision Tree regression and discuss its advantages and disadvantages.	6	3	2
	(ii) Discuss about how Random Forest performs classification using multiple decision trees	6	3	3
OR				
4(B)	Explain about the working mechanism of the Naïve Bayes classifier with real time applications	12	3	2
5(A)	(i) Interpret how the Perceptron algorithm classifies data and weights during training with a suitable example.	6	4	4
	(ii) Describe about the Linear Regression algorithm with implementation steps.	6	4	3

OR

5(B)	Explain the Support vector machine from the perspective of a non-linear kernel with an algorithm and derive the margin of the vectors with an example and depict it with necessary diagrams.	12	4	3
6(A)	(i) Demonstrate the Expectation-Maximization (EM) algorithm used in clustering.	6	5	2
	(ii) Apply K-Means clustering on a sample dataset and explain each iteration step.	6	5	3
OR				
6(B)	Compare K-Means, Fuzzy C-Means and Rough Clustering	12	5	4
END				

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Question Paper Code: 23CSE113

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS INSTITUTION)

B. Tech III Year II Semester (R23) Regular End Semester Examinations, May – 2026**CLOUD COMPUTING**

(Computer Science & Engineering)

Time: 3Hrs

Max Marks: 70

Attempt all the questions. All parts of the question must be answered in one place only.

All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

Q.No	Question	Marks	CO	BL
Q.1	i. Define load balancing.	1M	1	1
	ii. List any four characteristics of cloud computing.	1M	1	1
	iii. What is Hadoop scheduler?	1M	2	1
	iv. Define python package.	1M	2	1
	v. What is web framework?	1M	3	1
	vi. Define boto3 in AWS.	1M	3	1
	vii. What is streaming protocol?	1M	4	1
	viii. Define classification.	1M	4	1
	ix. What is GDPR?	1M	5	1
	x. What is data privacy?	1M	5	1
Q.2(A)	Explain cloud technologies: replication, NFV, monitoring, and billing	12M	1	2
OR				
Q.2(B)	Explain about cloud deployment models.	12M	1	2
Q.3(A)	Explain the architecture of Apache Hadoop and its core components in detail.	12M	2	2
OR				
Q.3(B)	Explain Python concepts: modules, packages, classes, and date/time operations with suitable examples.	12M	2	2
Q.4(A)	Compare Flask and Django frameworks	12M	3	2
OR				
Q.4(B)	Design a RESTful API for a cloud-based application.	12M	3	3
Q.5(A)	Explain recommendation systems and classification techniques.	12M	4	2
OR				
Q.5(B)	Explain multimedia cloud: live streaming and video transcoding applications.	12M	4	2
Q.6(A)	Analyze legal issues in cloud computing including jurisdiction and contracts.	12M	5	4
OR				
Q.6(B)	Explain cloud applications in education and healthcare.	12M	5	2

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MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS INSTITUTION)

B. Tech III Year II Semester (R23) Regular End Semester Examinations, May – 2026**CRYPTOGRAPHY AND NETWORK SECURITY**

(Computer Science & Engineering)

Time: 3Hrs

Max Marks: 70

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

S.No.	Question	Marks	CO	BL
1.	i) List the basic security services in network security.	1	1	1
	ii) What is a symmetric cipher model?	1	1	1
	iii) What is a finite field $GF(2^n)$?	1	2	1
	iv) What is modular exponentiation?	1	2	1
	v) What Elliptic Curve Cryptography?	1	3	1
	vi) How RC4 differ from RC5?	1	3	2
	vii) What is a digital Signature?	1	4	1
	viii) Differentiate between HMAC and CMAC.	1	4	2
	ix) What is HTTPS?	1	5	1
	x) Compare PGP with S/MIME	1	5	2
2(A)	(i) How steganography can protect the data? Illustrate its functionality.	6	1	2
	(ii) Describe different types of cryptographic attacks and explain how they threaten secure systems.	6	1	2
OR				
2(B)	Describe the structure and working of the Advanced Encryption Standard	12	1	2
3(A)	(i) Outline the concept of Diffie–Hellman key exchange and its role in public key cryptography.	6	2	3
	(ii) Using Euclidean algorithm find the greatest common divisor of 1265 and 18440.	6	2	3
OR				
3(B)	Summarize the key steps involved in the RSA algorithm with the example of where $e = 31$, $n=3599$. Calculate the private key of this user.	12	2	3
4(A)	(i) Describe application of Cryptographic Hash Functions.	6	3	2
	(ii) Explain in detail about public key Infrastructure.	6	3	2
OR				
4(B)	(i) Illustrate the process of SHA to generate a hash value with a neat logical view diagram.	12	3	2
5(A)	(i) How is S/MIME ensures Email security? Explain	6	4	2
	(ii) Describe the components of IP security architecture.	6	4	2
OR				
5(B)	Illustrate the process of Kerberos with it's requirements in detail.	12	4	2
6(A)	(i) Explain in detail about web security requirements.	6	5	2
	(ii) Describe the importance of HTTPS in the network security.	6	5	2
OR				
6(B)	Illustrate firewall characteristics with different types of firewalls locations and configurations.	12	5	2

*****END*****

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS INSTITUTION)

B. Tech III Year II Semester (R23) Regular End Semester Examinations, May – 2026**SOFTWARE TESTING METHODOLOGIES**

(Computer Science & Engineering)

Time: 3Hrs

Max Marks: 70

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

S.No.	Question	Marks	CO	BL
1.	i) Recall the purpose of software testing.	1	1	1
	ii) Distinguish between verification and validation.	1	1	2
	iii) Define transaction flow testing.	1	2	1
	iv) Explain the data flow graph.	1	2	2
	v) Define an open domain.	1	3	1
	vi) Distinguish between linear and non-linear domain boundaries.	1	3	2
	vii) Define a path expression.	1	4	1
	viii) Define flow anomaly in a program.	1	4	1
	ix) Recall the state graph.	1	5	1
	x) Explain the transition in state testing.	1	5	2
2(A)	(i) Explain the consequences of bugs in software systems with suitable examples.	6	1	2
	(ii) Discuss the basics concepts of path testing.	6	1	2
OR				
2(B)	Describe the taxonomy of bugs and classify them with real-world scenarios.	12	1	3
3(A)	(i) Explain the concepts of transaction flow testing and its techniques with examples.	6	2	2
	(ii) Discuss the basics of dataflow testing.	6	2	2
OR				
3(B)	Describe the strategies used in data flow testing and illustrate with a suitable program graph.	12	2	3
4(A)	(i) Discuss the Domain and interface testing.	6	3	2
	(ii) Explain the Domains and testability.	6	3	2
OR				
4(B)	Describe the concept of domains and paths in domain testing and explain how nice and ugly domains differ.	12	3	3
5(A)	Apply decision tables and KV charts to analyze and simplify the following specification: A system grants access if (user is admin) OR (user is registered AND payment is valid).	12	4	3
OR				
5(B)	Demonstrate the reduction procedure for path expressions using examples and explain its significance.	12	4	5
6(A)	(i) Apply the concept of graph matrices to a given program flow graph and compute its powers to determine reachability.	6	5	3
	(ii) Discuss the regular expressions & flow anomaly detection.	6	5	2
OR				
6(B)	Analyze the characteristics of good and bad state graphs. Construct state transition diagrams for a vending machine with states: Idle, Coin Inserted, Item Selected, Dispensing.	12	5	4

END

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS INSTITUTION)

B. Tech III Year II Semester (R23) Regular End Semester Examinations, May – 2026**INTRODUCTION TO CYBER SECURITY**

(Computer Science & Engineering)

Time: 3Hrs

Max Marks: 70

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

S.No.	Question	Marks	CO	BL
1.	i) How does the lack of cyber security awareness contribute to cybercrime growth?	1	1	1
	ii) Compare Indian cybercrime laws with global practices in handling data breaches.	1	1	2
	iii) How do the attackers manipulate human behavior?	1	2	1
	iv) Mention the types of cyber stalking.	1	2	1
	v) Mention the security implications of laptops in organizational environments.	1	3	1
	vi) Which authentication service mechanisms used in mobile computing?	1	3	1
	vii) Mention the propagation mechanism of a worm in a network.	1	4	1
	viii) Define a Trojan horse.	1	4	1
	ix) List the challenges for organizations in social computing platforms.	1	5	1
	x) Compare the relationship between user-generated content and organizational security risks.	1	5	2
2(A)	Compare and contrast Indian cybercrime laws with global cybercrime frameworks, highlighting key similarities and differences.	12	1	2
OR				
2(B)	Explain about the classification of cybercrimes and propose improvements to existing classification systems.	12	1	2
3(A)	Compare different types of social engineering attacks and design awareness strategies to prevent them.	12	2	2
OR				
3(B)	Describe how cybercriminals exploit human psychology and technological weaknesses to execute attacks.	12	2	2
4(A)	Discuss about the organizational measures for handling mobile devices and suggest improvements for enhanced security.	12	3	2
OR				
4(B)	Develop a comprehensive organizational security policy for mobile computing, including laptops and wireless devices.	12	3	3
5(A)	Explain about the SQL Injection attacks with suitable examples. Design secure coding practices to prevent such vulnerabilities.	12	4	2
OR				
5(B)	Explain the steganography techniques in cybercrime and propose methods to detect hidden information in digital media.	12	4	2
6(A)	Compare the different privacy concerns in online environments and design a privacy protection model for organizations.	12	5	2
OR				
6(B)	Analyze the challenges posed by user-generated content in social computing. Suggest mechanisms to monitor and control risks.	12	5	4

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Question Paper Code: 23CSE403

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS INSTITUTION)**B. Tech III Year II Semester (R23) Regular End Semester Examinations, May – 2026****DevOps**

(Computer Science & Engineering)

Time: 3Hrs

Max Marks: 70

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

S.No.	Question	Marks	CO	BL
1.	i) Name any one DevOps practice.	1	1	2
	ii) What is the main goal of DevOps?	1	1	1
	iii) Define Key Activities.	1	2	1
	iv) What are Key Resources?	1	2	1
	v) State one role of technology in innovation.	1	3	2
	vi) What is continuous delivery?	1	3	1
	vii) Define continuous improvement in DevOps.	1	4	1
	viii) What is innovation culture in DevOps?	1	4	1
	ix) Define DevOps transformation.	1	5	1
	x) What is trust in DevOps culture?	1	5	2
2(A)	(i) Describe the evolution of DevOps from traditional software development.	6	1	2
	(ii) Explain Continuous Integration and Continuous Delivery.	6	1	2
OR				
2(B)	Discuss the role of communication, collaboration, and shared ownership in DevOps.	12	1	2
3(A)	(i) Explain Channels and Customer Relationships in detail.	6	2	2
	(ii) Describe the importance of Key Partnerships in a business model.	6	2	2
OR				
3(B)	Analyze how DevOps improves collaboration between development and operations teams.	12	2	4
4(A)	(i) Explain the concept of Optimize to Innovate in DevOps.	6	3	2
	(ii) Describe the DevOps platform and its components.	6	3	2
OR				
4(B)	(i) Explain the play Deliver Micro services Architecture with advantages, challenges, and real-world applications.	12	3	2
5(A)	(i) Discuss the challenges of scaling DevOps in large enterprises.	6	4	2
	(ii) Explain how DevOps supports large-scale enterprise software development	6	4	2
OR				
5(B)	Discuss the importance of standardization of tools and processes in enterprise DevOps. Explain how it improves efficiency and governance.	12	4	2
6(A)	(i) Explain the concept of "Rearing Unicorns on an Aircraft Carrier."	6	5	3
	(ii) Discuss benefits of starting DevOps with pilot projects.	6	5	2
OR				
6(B)	Describe the importance of developing a culture of collaboration and trust in successful DevOps adoption	12	5	2

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Question Paper Code: 23CSE405

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE
(UGC-AUTONOMOUS INSTITUTION)**B. Tech III Year II Semester (R23) Regular End Semester Examinations, May – 2026****SOFTWARE PROJECT MANAGEMENT**

(Computer Science & Engineering)

Time: 3Hrs**Max Marks: 70**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

S.No.	Question	Marks	CO	BL
1.	i) Define software economics.	1	1	1
	ii) What is iterative development?	1	1	1
	iii) Define inception phase.	1	2	1
	iv) List types of artifacts.	1	2	1
	v) What is periodic assessment?	1	3	1
	vi) What is estimation?	1	3	1
	vii) What are management indicators?	1	4	1
	viii) Define process automation.	1	4	1
	ix) What is project structure?	1	5	1
	x) What is next-gen software economics?	1	5	1
2(A)	Discuss improving software processes and achieving quality.	12	1	2
OR				
2(B)	Discuss the various techniques to reduce software product size.	12	1	2
3(A)	Compare traditional and modern software management approaches with examples.	12	2	4
OR				
3(B)	Describe briefly about the artifact sets with examples.	12	2	2
4(A)	Explain briefly about the inter workflows in detail.	12	3	2
OR				
4(B)	Illustrate the WBS and planning guidelines in detail.	12	3	2
5(A)	Explain about the project control and process instrumentation.	12	4	2
OR				
5(B)	Discuss about the quality indicators and measurement.	12	4	2
6(A)	Explain in detail about the line of business and project organization.	12	5	2
OR				
6(B)	Discuss the CCPDS-R case study and its insights.	12	5	2

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Question Paper Code: 23CSE407

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS INSTITUTION)

B. Tech III Year II Semester (R23) Regular End Semester Examinations, May – 2026**NATURAL LANGUAGE PROCESSING**

(Computer Science & Engineering)

Time: 3Hrs**Max Marks: 70**

Attempt all the questions. All parts of the question must be answered in one place only.
All parts of Q.no 1 are compulsory. In Q.no 2 to 6 answer either A or B only

S.No.	Question	Marks	CO	BL
1.	i) Define Natural Language Processing.	1M	1	1
	ii) Identify language understanding concept.	1M	1	1
	iii) Recall the meaning of lexicon.	1M	2	1
	iv) Recall the concept of entropy.	1M	2	1
	v) State parser definition.	1M	3	1
	vi) What is gap threading?	1M	3	1
	vii) What is ambiguity in sentences?	1M	4	1
	viii) List n-gram probabilities.	1M	4	1
	ix) What is CLIR?	1M	5	1
	x) What is MLIR?	1M	5	1
2(A)	Explain about the NLP system architecture.	12M	1	2
	OR			
2(B)	Interpret the representation techniques in NLP.	12M	1	2
3(A)	Explain about the feature systems and augmented grammars.	12M	2	2
	OR			
3(B)	Demonstrate Bayes rule using a suitable NLP example.	12M	2	2
4(A)	Examine the shift-reduce parsing with stepwise explanation.	12M	3	2
	OR			
4(B)	Describe about the movement phenomenon in natural language with example.	12M	3	2
5(A)	Explain the various semantic structure models.	12M	4	2
	OR			
5(B)	Explain about the ambiguity handling in logical forms.	12M	4	2
6(A)	Describe about the various approaches to machine translation.	12M	5	2
	OR			
6(B)	Demonstrate how Precision and Recall are used to evaluate an IR system.	12M	5	2

*****END*****