

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS INSTITUTION)

B. Tech III Year II Semester (R23) Regular End Semester Examinations, May- 2026**ROBOTICS AND INTELLIGENT SYSTEMS**

(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 modern robotics.	1	1	1
	ii) What are the benefits of robotics?	1	1	1
	iii) Define motion planning in robotics.	1	2	1
	iv) List out the Inverse Kinematics applications.	1	2	1
	v) What is meant by the term "sensing range" of a sensor?	1	3	1
	vi) Difference between object classification and object detection.	1	3	2
	vii) Which level of robot programming specifies individual joint angles and velocities?	1	4	1
	viii) What is basic execution unit in ROS?	1	4	1
	ix) Name the formal language used to represent states and actions in classical planning.	1	5	1
	x) What is primary goal of robot intelligence?	1	5	1
2(A)	Discuss about types of robots.	12	1	2
OR				
2(B)	Describe the working of robots with a neat diagram	12	1	2
3(A)	(i) Explain about the Forward and inverse kinematics of velocity in detail.	6	2	2
	(ii) Describe the about the Denavit-Hartenberg (D-H) transformation in detail.	6	2	2
OR				
3(B)	Discuss Homogeneous transformation matrices, translation and rotation matrices in detail.	12	2	2
4(A)	(i) Explain force and torque sensing in robotics.	6	3	2
	(ii) Discuss the process of object recognition.	6	3	2
OR				
4(B)	Describe proximity sensors used in robotics. Explain their types, working principles, advantages, disadvantages, and applications	12	3	2
5(A)	Explain the Robot Operating System (ROS) with suitable details.	12	4	2
OR				
5(B)	Discuss the characteristics of task-level languages in robot programming. Why are they the most widely used in industrial robotics?	12	4	2
6(A)	Analyze means-ends analysis as a heuristic problem-solving strategy in robotics. Break down its step-by-step procedure, and examine its application through a detailed blocks-world example involving the rearrangement of stacked blocks using a robotic arm.	12	5	3

OR

6(B) Discuss the use of predicate logic in robot task planning. Explain how first-order logic is used to represent states, actions, preconditions, and effects

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Question Paper Code: 23HDCSE102

MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE

(UGC-AUTONOMOUS INSTITUTION)

B. Tech III Year II Semester (R23) Regular End Semester Examinations, May – 2026**No SQL DATABASES**

(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 NoSQL databases.	1	1	1
	ii) What is persistent data?	1	1	1
	iii) What is aggregation-oriented database?	1	2	1
	iv) Define master-slave replication.	1	2	1
	v) List features of document-oriented databases.	1	3	2
	vi) What is event logging?	1	3	1
	vii) What is a column-oriented NoSQL database?	1	4	1
	viii) Define counters in NoSQL databases.	1	4	1
	ix) List features of key-value databases.	1	5	2
	x) Which property ensures reliable multi-user access in databases?	1	5	2
2(A)	(i) Explain the value of relational databases in modern applications.	6	1	2
	(ii) Describe attack of the clusters and its importance.	6	1	2
OR				
2(B)	Explain the different types of NoSQL databases and compare them with relational databases.	12	1	2
3(A)	(i) Describe HBase and its deployment.	6	2	2
	(ii) Explain MongoDB architecture and applications.	6	2	2
OR				
3(B)	Illustrate differences of distribution models :single server, sharding, master-slave replication, peer-to-peer replication.	12	2	3
4(A)	(i) Discuss scaling and query features of document databases with suitable examples.	6	3	2
	(ii) Explain NoSQL key-value and document databases. Discuss document-oriented database features	6	3	2
OR				
4(B)	(i) Illustrate why NoSQL databases are preferred for web analysis and real-time analytics compared to traditional RDBMS	12	3	2
5(A)	(i) Compare Apache HBase and Apache Cassandra with examples.	6	4	3
	(ii) Discuss suitable use cases such as event logging, CMS, and blogging platforms.	6	4	2
OR				
5(B)	Explain column-oriented NoSQL databases. Compare Apache HBase and Apache Cassandra.	12	4	2
6(A)	(i) Describe structure of data and scaling in key-value databases.	6	5	2
	(ii) Explain how operations by sets are implemented in key-value databases.	6	5	2
OR				
6(B)	Discuss Firebase as a cloud-hosted NoSQL database. Discuss its architecture, feature, and use cases.	12	5	2

*****END*****

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(UGC-AUTONOMOUS INSTITUTION)

B. Tech III Year II Semester (R23) Regular End Semester Examinations, May – 2026**CLOUD 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) Give the meaning of Platform as a Service (PaaS).	1	1	1
	ii) Define cloud computing.	1	1	1
	iii) What is the CSA cloud reference model?	1	2	1
	iv) Define cloud security	1	2	1
	v) What is threat model?	1	3	1
	vi) Give an example of a cloud attack tool.	1	3	1
	vii) Mention data security mitigation.	1	4	1
	viii) Define data security.	1	4	1
	ix) Define availability in cloud security.	1	5	1
	x) Define vulnerability in cloud security.	1	5	1
2(A)	(i) Summarize about the key characteristics of cloud computing.	6	1	2
	(ii) List the various deployment models. Explain any one in detail.	6	1	2
OR				
2(B)	Explain about the cloud service models and deployment models.	12	1	2
3(A)	Discuss about the cloud security issues and outline privacy requirements.	12	2	2
OR				
3(B)	Summarize about the security requirements and outline infrastructure security in cloud computing.	12	2	2
4(A)	Describe about the threat model and attack entities.	12	3	2
OR				
4(B)	Analyze the different cloud attacks and attack tools	12	3	4
5(A)	Examine suitable methods to ensure data security and mitigate threats in cloud computing.	12	4	4
OR				
5(B)	Explain about the data security aspects and mitigation techniques.	12	4	2
6(A)	Explain about the secure storage and computation.	12	5	2
OR				
6(B)	Illustrate identity authentication, secure transmission, and storage mechanisms.	12	5	2

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