MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Supplementary Examinations, May/June 2023
Artificial Intelligence
(CSE, IT, CSE-CS, CSE-DS, CSE-IOT)

Roll No										

Time: 3 hours   **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE
Question from each SECTION and each Question carries 14 marks.
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SECTION-I

1	**A**	Briefly Explain the history of Artificial Intelligence.	**[7M]**
	B	Explain the Heuristic Search Techniques.	**[7M]**
		OR	
2	**A**	Discuss A* Algorithm in Detail.	**[7M]**
	B	Explain basic agent and Learning Agents.	**[7M]**

SECTION-II

3	**A**	Explain Min.Max game problem with a game tree in which MIN plays first.	**[7M]**
	B	Explain the Forward-Chaining Algorithm for Propositional Logic.	**[7M]**
		OR	
4	**A**	Explain the syntax and semantics of Propositional Logic.	**[6M]**
	B	Give a brief note on Alpha-Beta Pruning.	**[8M]**

SECTION-III

5	**A**	Explain the issues in Knowledge Representation. Define Inheritance in Semantic Net.	**[7M]**
	B	Explain knowledge representation schemes.	**[7M]**
		OR	
6	**A**	Explain Semantic Networks for Knowledge Representation.	**[4M]**
	B	Discuss the Bayesian Belief Networks with an example.	**[10M]**

SECTION-IV

7	**A**	Briefly discuss about different types of Learning.	**[7M]**
	B	Discuss Supervised Learning Algorithms in detail.	**[7M]**
		OR	
8	**A**	Describe the role of information gain in Decision Tree Learning.	**[7M]**
	B	Discuss about the Winston's Learning Program.	**[7M]**

SECTION-V

9	**A**	Explain the Issues for problem solving.	**[7M]**
	B	What is Inference Engine? Describe Backward and Forward chaining Mechanism used by an inference engine?	**[7M]**
		OR	
10	**A**	Explain Expert system shells.	**[8M]**
	B	Explain Expert Systems with example.	**[6M]**

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MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Supplementary Examinations, May/June 2023
Software Engineering
(CSE, IT, CSE-CS, CSE-AIML, CSE-IOT)

Roll No										

Time: 3 hours   **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1	A	Describe about software process framework and process flow.	**[7M]**
	B	Illustrate about prescriptive process models with a neat diagram.	**[7M]**

OR

2	A	Analyze about various levels in capability maturity model integration.	**[7M]**
	B	Elaborate about phases in unified process with a neat diagram.	**[7M]**

SECTION-II

3	A	Interpret about the need of Functional Requirements and Non-functional requirements in requirements engineering process.	**[7M]**
	B	Briefly explain about use case and class diagrams with an example.	**[7M]**

OR

4	A	Describe about behavioral models with an example.	**[7M]**
	B	Discuss about the data and object models in software development.	**[7M]**

SECTION-III

5	A	Analyze about software quality guidelines and attributes.	**[7M]**
	B	Outline the importance of modularity and information hiding in software design.	**[7M]**

OR

6	A	Discuss various golden rules for interface design.	**[7M]**
	B	Briefly explain about the interface design evaluation cycle.	**[7M]**

SECTION-IV

7	A	Analyze about top-down integration and bottom-up integration in software testing.	**[7M]**
	B	Briefly explain about types of system testing for software development.	**[7M]**

OR

8	A	Describe about risk projection and refinement in risk management process.	**[7M]**
	B	Elaborate about RMMM plan in risk management.	**[7M]**

SECTION-V

9	A	Interpret about the statistical software quality assurance with a example.	**[7M]**
	B	Analyze about the importance of software reliability in quality management.	**[7M]**

OR

10	A	Analyze about ISO9000 quality study	**[7M]**
	B	Explain the class and use case of ATM management system.	**[7M]**

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MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Supplementary Examinations, May/June 2023
Digital Forensics
(CSE)

Roll No										

Time: 3 hours **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1	A	What is cyber crime?	**[7M]**
	B	What are the various modes or manners of committing Cybercrime?	**[7M]**

OR

2	A	What are the various types of cyber crimes?	**[7M]**
	B	Write a comment over following task. 'A fraudulent email which is trying to obtain your username and password'.	**[7M]**

SECTION-II

3	A	As the courts are functioning online since the pandemic. Discuss the issues for digital evidence collection and presentation before the courts and legal document.	**[7M]**
	B	Primary, District and Tertiary referral hospital generating vast amount of patient data. They are working under interconnected information network. What are steps needed to secure personal medical records	**[7M]**

OR

4	A	Explain about computer incident and crime sense	**[7M]**
	B	Discuss the area of cyber attacks and risk to the users of digital mean.	**[7M]**

SECTION-III

5	A	Discuss seizing digital evidences in crime scene analysis.	**[7M]**
	B	Explain the standards procedure of evidence gathering	**[7M]**

OR

6	A	What is the workload of law enforcement agencies for digital gathering of evidences?	**[7M]**
	B	What type training is required for digital forensics. Define who should be notified of a crime	**[7M]**

SECTION-IV

7	A	Provide two reasons why it is very important for a police investigator to routinely critically assess all of the information they encounter.	**[7M]**
	B	What are the skills a modern-day officer must achieve to respond to events and investigate crimes?	**[7M]**

OR

8	A	What is the first step in developing an investigative mind-set?	**[7M]**
	B	What is the level of forensic knowledge that a modern day investigator must achieve to become an effective investigator?	**[7M]**

SECTION-V

9   **A**   How does mobile forensics differ from other types of forensics?   **[7M]**

       B   Write standard operating procedure as per the clauses given in Indian IT   **[7M]**
Act 2000, information gathering for crime investigation.

<div align="center">OR</div>

10   **A**   What are mobile forensics tools for investigation and analysis of data?   **[7M]**

       B   What are rights protected in the IT Act 2000? Discuss the clauses for the   **[7M]**
seizure of personal devices

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MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Supplementary Examinations, May/June 2023
Compiler Design
(CSE & CSE-AIML)

Roll No										

Time: 3 hours   **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE
Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1   **A**   What are the advantages of a compiler over an interpreter?   **[7M]**

    B   Differentiate a phase and pass? Compare multi-pass and single pass compiler?   **[7M]**

OR

2   **A**   What is meaning of patterns, lexemes and tokens? Identify lexemes and tokens in the following statement: a = b*d;   **[7M]**

    B   Explain with one example how LEX program performs lexical analysis for the following patterns in `C': identifier, comments, numerical constants, arithmetic operators.   **[7M]**

SECTION-II

3   **A**   Write the procedure for Recursive descent parser with an example?   **[7M]**

    B   Construct the predictive parser for the following grammar   **[7M]**
S → iCtSS' | a
S' → eS | ε
C → b

OR

4   **A**   Explain Shift Reduce parsers with neat block diagram?   **[7M]**

    B   Construct LR (0) items for the following grammar.   **[7M]**
E→ E+T | T
T →T*F | F
F → (E) | id

SECTION-III

5   **A**   For the input expression (3+4)*(5+6)n construct an annotated parse tree according to Syntax Directed Definition (SDD) of desk calculator   **[7M]**

    B   What is intermediate code representation? Explain quadruples, triples and indirect triples with an example.   **[7M]**

OR

6   **A**   Consider the following grammar: **[7M]**
D →TL
T → int |float
L →L, id |id
Write the Syntax Directed Definitions (SDD) to add the type of each identifier to its entry in the symbol table during semantic analysis?

    B   Explain the use of Symbol table in compilation process? List out various   **[7M]**

attributes stored in the symbol table?

SECTION-IV

7	A	Explain about Heap management.	[7M]
	B	Explain Machine dependent code optimization (Peephole Optimization) in detail with an example?	[7M]

OR

8	A	Explain various storage allocation strategies with an example.	[7M]
	B	Construct DAG for the following basic block of 3-address instructions:	[7M]

a := b + c
x := a + b
b := a - d
c := b + c
d := a - d
y := a - d

SECTION-V

9	Explain Global Data Flow analysis with necessary equations.	[14M]

OR

10	A	Explain Live Variable analysis with an example.	[7M]
	B	Explain different methods for register allocation and assignment	[7M]

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MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Supplementary Examinations, May/June 2023
Embedded Systems
(CSE)

Roll No										

Time: 3 hours   **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1	A	Explain the different addressing modes of 8086 microprocessor.	[7M]
	B	Discuss about the memory segmentation in 8086.	[7M]

OR

2	A	Draw the architecture of 8051 micro controller and discuss its operation.	[7M]
	B	Discuss the Logical and Program Branching instructions of 8051 with examples.	[7M]

SECTION-II

3	A	Explain the differences between Embedded System and general purpose computing system.	[5M]
	B	Write the major applications of Embedded System	[5M]
	C	Write the difference between RISC and CISC	[4M]

OR

4	A	Discuss in detail about operation attributes of embedded systems.	[7M]
	B	Explain any two applications of embedded systems in detail.	[7M]

SECTION-III

5	A	List all the categories of embedded core and any two in detail.	[7M]
	B	Discuss about LED, seven segment display and Optocoupler	[7M]

OR

6	A	Explain the SPI bus interfacing with neat schematic.	[7M]
	B	Discuss about any two external communication interfaces	[7M]

SECTION-IV

7	A	Explain various steps involved in assembling of an assembly language program.	[7M]
	B	Discuss about super loop based approach of embedded firmware design.	[7M]

OR

8	A	Describe the process of high level language to machine language conversion.	[7M]
	B	Explain the various scenarios of mixing of assembly language with high level language.	[7M]

SECTION-V

9	A	Explain the loops and conditional statements in Embedded C.	[7M]
	B	Discuss the various functions in Embedded C.	[7M]

OR

10	A	Explain the logical and relational operators in Embedded C.	[7M]
	B	Discuss about usage of pointers in Embedded C with syntaxes.	[7M]

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MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Supplementary Examinations, May/June 2023
Internet of Things & Its Applications
(ME, CSE, IT, CSE-CS, CSE-AIML & CSE-DS)

Roll No										

Time: 3 hours   **Max. Marks: 70**

Note: This question paper Consists of 5 Sections. Answer **FIVE** Questions, Choosing ONE Question from each SECTION and each Question carries 14 marks.

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SECTION-I

1	*A*	Summarize the Megatrends, Capabilities and implications of IoT.	**[7M]**
	B	Write a short notes on Functional blocks of an IoT ecosystem	**[7M]**

OR

2	*A*	Explain the differences between M2M and IOT.	**[7M]**
	B	How does M2M communication work? Explain	**[7M]**

SECTION-II

3	*A*	Explain LoRaWAN standard and alliance MAC layer and security	**[7M]**
	B	Describe MQTT framework and message format in detail	**[7M]**

OR

4	*A*	Explain COAP protocol and its message format.	**[7M]**
	B	List and explain the key advantages of internet protocol	**[7M]**

SECTION-III

5	Explain about the concepts involved in Raspberry Pi	**[14M]**

OR

6	Write short notes on Microcontrollers, System on Chips, IoT system building blocks.	**[14M]**

SECTION-IV

7	*A*	Explain in detail the core functions of edge analytics with necessary diagrams	**[7M]**
	B	Explain the different types of cloud computing services.	**[7M]**

OR

8	Explain about the computing using a cloud platform for IoT/M2M applications	**[14M]**

SECTION-V

9	Formulate the significant use of Raspberry Pi in Smart cities and Industrial appliances.	**[14M]**

OR

10	Discuss IoT applications in home, infrastructures,	**[14M]**

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