R15

Code No: R15A0519

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech II Semester Supplementary Examinations, April 2023

Information Security

(CSE)

Roll No										

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 25 marks and Answer all questions.
Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

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PART-A (25 Marks)

1). a	Enumerate the mechanisms implemented for confidentiality?	**[2M]**
b	Enumerate key range and key size?	**[3M]**
c	What is affine cipher?	**[2M]**
d	What is the role of s-box in DES?	**[3M]**
e	What are the advantages of Key Distribution centre?	**[2M]**
f	Write the Advantages and disadvantages of MD5 Algorithm.	**[3M]**
g	Why does PGP generate a signature before applying compression?	**[2M]**
h	What is secure socket layer?	**[3M]**
i	How to manage password?	**[2M]**
j	What Hill Cipher with example.?	**[3M]**

PART-B (50 MARKS)

SECTION-I

2	How does IPSec differ from other network security protocols, such as Secure Sockets Layer (SSL) and Transport Layer Security (TLS)? What are some common use cases for IPSec, including site-to-site VPNs and remote access VPNs, and how does IPSec enable secure communication between geographically dispersed networks and devices?	**[10M]**

OR

3	How does IPSec support remote access VPNs and site-to-site VPNs, and what are some key considerations for deploying IPSec in these scenarios? How does key management differ for these two types of VPNs, and what are some best practices for securing and managing cryptographic keys in large-scale IPSec deployments?	**[10M]**

SECTION-II

4	A. Cryptography and security are essential for ensuring the integrity and privacy of sensitive data, but even with these measures in place, web applications and online processes can still be vulnerable to attacks. Discuss Cross-site Scripting Vulnerability and Virtual Elections as two examples of such vulnerabilities, their impact on data security, and the measures that can be taken to address them.	**[4M]**
	B. Define Cross-site Scripting Vulnerability. Discuss how Cross-site	**[3M]**

Scripting Vulnerability works and how attackers can exploit it. Explain the impact of Cross-site Scripting Vulnerability on data security. Describe the measures that can be taken to prevent Cross-site Scripting Vulnerability.

C. Define Virtual Elections. Discuss the importance of security in Virtual Elections. Describe how Cryptography can be used to secure Virtual Elections. **[3M]**

OR

5 Define Intrusion detection and its importance in cybersecurity. Explain the different types of Intrusion detection systems and their functions. Discuss the benefits and limitations of Intrusion detection systems. Describe the measures that can be taken to enhance the effectiveness of Intrusion detection systems. **[10M]**

SECTION-III

6 What are the key features of Kerberos and X.509 as authentication applications, and how do they ensure secure and reliable authentication in digital systems? While Kerberos provides a centralized authentication service using tickets, X.509 is a standard for digital certificates that use public key cryptography. How do these methods differ in terms of their implementation and what are their strengths and limitations for access control? **[10M]**

OR

7 What are the different cryptographic techniques used for data security and integrity, such as Secure Hash Algorithm, Whirlpool, HMAC, CMAC, Digital Signatures, and the Knapsack Algorithm? How do these methods work and what are their respective strengths and limitations in ensuring secure and reliable communication and authentication? Additionally, what are the potential vulnerabilities and attacks that these techniques face, and what measures can be taken to mitigate them? **[10M]**

SECTION-IV

8 Why is understanding the principles and applications of Block Cipher modes of operation and Stream Ciphers essential for implementing effective data encryption and authentication mechanisms that protect sensitive information from unauthorized access or malicious attacks? How do these methods contribute to the overall security and efficiency of cryptographic systems, and what are the strengths and limitations of each of these methods for encrypting and decrypting data? **[10M]**

OR

9 What are the principles of public key cryptosystems and how do they contribute to secure and reliable communication in digital systems? What are the key algorithms used in public key cryptography, such as RSA and Diffie-Hellman, and how do they enable secure key exchange and data encryption? Additionally, what are the key distribution methods used in public key cryptosystems, and how do they facilitate secure and efficient communication between users and systems? **[10M]**

SECTION-V

10 What are the five common types of cyber attacks, and how do they differ in terms of their objectives, methods, and targets? Additionally, what are some of the most effective countermeasures and defense strategies for preventing and mitigating the impact of these attacks, and what role do security protocols, firewalls, and **[10M]**

encryption technologies play in safeguarding digital systems and data? Understanding the different types of cyber attacks and their associated risks is essential for developing effective security strategies and protocols that protect against data breaches, system failures, and other threats to digital infrastructure and services.

OR

11 A. What is the maximum key size for RSA encryption? **[4M]**

B. How many possible keys are there for a symmetric encryption algorithm with a key range of 256 bits? If a key range is increased from 128 bits to 256 bits, how many times stronger is the encryption? **[6M]**

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R15

Code No: R15A0521

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech II Semester Supplementary Examinations, April 2023

Software Testing Methodologies

(CSE)

Roll No										

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 25 marks and Answer all questions.
Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

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PART-A (25 Marks)

1). a	What is meant by testing? Why we need it	**[2M]**
b	List the goals of software testing.	**[3M]**
c	Write the applications of path testing.	**[2M]**
d	What is Data flow anomaly?	**[3M]**
e	Define nice and ugly domains.	**[2M]**
f	Define domain testing with example.	**[3M]**
g	What is logic based testing?	**[2M]**
h	Explain Regular Expressions.	**[3M]**
i	How can the graph be represented in Matrix form?	**[2M]**
j	What is state transition?	**[3M]**

PART-B (50 MARKS)

SECTION-I

2	Why is it impossible for a tester to find all the bugs in a system? Why might it not be necessary for a program to be completely free of defects before it is delivered to its customers?	**[10M]**

OR

3	Explain white-box testing and behavioral testing?	**[10M]**

SECTION-II

4	State and explain various kinds of predicate blindness with examples?	**[10M]**

OR

5	What are link counters? Discuss their use in path testing?	**[10M]**

SECTION-III

6	What is meant by transaction flow testing. Discuss its significance.	**[10M]**

OR

7	What is meant by domain testing? Discuss the various applications of domain testing?	**[10M]**

SECTION-IV

8	Explain Regular Expressions and Flow Anomaly detection.	**[10M]**

OR

9	Explain path expression with examples.	**[10M]**

SECTION-V

10	What are the principles of state testing. Discuss advantages and disadvantages.	**[10M]**

OR

11	Explain about good state and bad state graphs.	**[10M]**

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R15

Code No: R15A0524

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech II Semester Supplementary Examinations, April 2023

Distributed Systems

(CSE)

Roll No										

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 25 marks and Answer all questions.
Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

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PART-A (25 Marks)

1). a	Describe a distributed system, and provide examples of a distributed system.	**[2M]**
b	Compare and contrast between the centralized and distributed system.	**[3M]**
c	List the different process states in distributed systems.	**[2M]**
d	Explain external and internal synchronization.	**[3M]**
e	Discuss inter process communication (IPC) mechanisms used in distributed systems.	**[2M]**
f	Describe the differences between synchronous and asynchronous remote invocation in distributed object systems.	**[3M]**
g	What is sequential consistency?	**[2M]**
h	How sequential consistency is related to distributed shared memory.	**[3M]**
i	What is timestamp ordering?	**[2M]**
J	How serializability is ensured using timestamp ordering	**[3M]**

PART-B (50 MARKS)

SECTION-I

2	Discuss the emerging trends in resource sharing and collaboration in distributed systems and enlist the challenges and opportunities associated with these trends.	**[10M]**

OR

3	Discuss the role of fundamental models in distributed systems, and how their key concepts and techniques applied to different types of distributed systems.	**[10M]**

SECTION-II

4	Suppose a distributed system has two processes P1 and P2. The processes communicate with each other by exchanging messages. P1 sends a message to P2, and P2 receives the message. The local clocks of the processes when the event occurs are as follows: P1: 5 P2: 8	

a) If the maximum clock drift between any two clocks is 2 time units, what is the possible range of the actual time of the event, assuming the clocks are not synchronized? **[5M]**

b) Using the Cristian's algorithm, synchronize the clocks of the two processes. Show your work. **[5M]**

OR

5 Describe an election algorithm, and how does it enable the selection of a leader in a distributed system? Describe some common election algorithms that handle failures and network partitions. **[10M]**

SECTION-III

6 Discuss an External Data Representation (XDR), and how is it used to facilitate communication between systems with different data representations through marshalling and unmarshalling technique. **[10M]**

OR

7 Describe the architecture of Java RMI and how it supports distributed object communication. **[10M]**

SECTION-IV

8 Illustrate a case study that demonstrate the architecture of SUN Network File System. **[10M]**

OR

9 Discuss the alternative consistency models that leveraged in Distributed Shared Memory systems, and how do they differ from sequential and release consistency. **[10M]**

SECTION-V

10 Describe the optimistic concurrency control detection schemes used in conflicts between transactions. **[10M]**

OR

11 Explain the methods used to prevent and detect distributed deadlocks in a distributed transactions. **[10M]**

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R15

Code No: R15A0424

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech II Semester Supplementary Examinations, April 2023

Embedded Systems Design

(CSE)

Roll No										

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 25 marks and Answer all questions.
Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

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PART-A (25 Marks)

1). a	Name the different segment registers of 8086 microprocessor?	**[2M]**
b	Name the various I/O ports of 8051 microcontroller?	**[3M]**
c	What are the benefits of embedded systems?	**[2M]**
d	What are 4 applications of embedded system?	**[3M]**
	What are the Non operational quality attributes:	
e	List the types of memories used for program storage in an embedded system design.	**[2M]**
f	What is the core of the embedded systems?	**[3M]**
g	What are 10 examples of high-level languages?	**[2M]**
h	What is an embedded operating system?	**[3M]**
i	Draw the Architecture of Operating System?	**[2M]**
j	Name any four basic functions of of a Real Time kernel?	**[3M]**

PART-B (50 MARKS)

SECTION-I

2	With the help of a block diagram, Explain the architecture of 8086?	**[10M]**
	OR	
3	List all the addressing modes of 8051 microcontroller and explain three modes with different instructions?	**[10M]**

SECTION-II

4	Explain the different classifications of embedded systems. Give an example for each.	**[10M]**
	OR	
5	Explain the various purposes of embedded systems in detail with illustrative examples.	**[10M]**

SECTION-III

6	Briefly explain about memory architectures in embedded systems.	**[10M]**
	OR	
7	Explain the differences between I2C and SPI interface.List the merits and limitations of parallel port over serial RS-232 interface.	**[10M]**

SECTION-IV

8	What is the need of an embedded firmware? Briefly explain the embedded firmware development languages development?	**[10M]**
	OR	
9	Determine the high level language based on embedded firmware development technique?	**[10M]**

SECTION-V

10	Name the different types of Operating Systems and explain any two?	**[10M]**
	OR	
11	Explain the different types of multitasking mechanisms?	**[10M]**

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R15

Code No: R15A0520

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech II Semester Supplementary Examinations, April 2023

Web Technologies

(CSE)

Roll No										

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 25 marks and Answer all questions.
Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

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PART-A (25 Marks)

1). a	Define Internet	**[2M]**
b	Define Heading Tags with an example.	**[3M]**
c	Define PHP Function	**[2M]**
d	State rules to define tags in XML?	**[3M]**
e	What are the Difference between Generic Servlet and HTTPServlet?	**[2M]**
f	What are the different types of session tracking mechanism supported by Servlets?	**[3M]**
g	Define JSP expression.	**[2M]**
h	What are implicit objects in jsp?	**[3M]**
i	What is JDBC and JDBC Driver?	**[2M]**
j	What are the JDBC API Components?	**[3M]**

PART-B (50 MARKS)

SECTION-I

2	Explain the following HTML tags with all attributes. i.<a> ii.<body> iii.<img> iv.<table> v.<p>	**[10M]**
	OR	
3	Explain JavaScript Object: Window, Document.	**[10M]**

SECTION-II

4	Explain variables and operators with example in PHP	**[10M]**
	OR	
5	What is XML? Explain how to write an XML document? What are the goals of XML? Clearly explain the XML Schema and XML parsing in detail.	**[10M]**

SECTION-III

6	What is a 'servlet' ? Explain the life cycle of a servlet with an example servlet program	**[10M]**
	OR	
7	Discuss about Session tracking in Servlets with a suitable example.	**[10M]**

SECTION-IV

8	Explain about the jsp processing.	**[10M]**

OR

9	Discuss about the code snippets in detail.	**[10M]**

SECTION-V

10	What is JDBC? How to connecting to a database using JDBC	**[10M]**

OR

11	How will you access a database from a JSP page.	**[10M]**

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R15

Code No: R15A0518

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech II Semester Supplementary Examinations, April 2023

Object Oriented Analysis and Design

(CSE)

Roll No										

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B
Part A is compulsory which carriers 25 marks and Answer all questions.
Part B Consists of 5 SECTIONS (One SECTION for each UNIT). Answer FIVE Questions, Choosing ONE Question from each SECTION and each Question carries 10 marks.

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PART-A (25 Marks)

1). a	What are Three Kinds of Actors?	**[2M]**
b	What are the three ways and perspectives to Apply UML?	**[3M]**
c	Write briefly about Interfaces.	**[2M]**
d	What is package and write its purpose.	**[3M]**
e	Write about Behavioral modeling.	**[2M]**
f	Explain about Use case diagram.	**[3M]**
g	What is Object Oriented analysis & Design?	**[2M]**
h	Distinguish between method and message in object.	**[3M]**
i	Illustrate the relationship used in Use case	**[2M]**
j	Define Aggregation and Composition.	**[3M]**

PART-B (50 MARKS)

SECTION-I

2	List out the components of Object-Oriented Analysis and Design	**[10M]**
	OR	
3	Explain Software Development Life Cycle.	**[10M]**

SECTION-II

4	Explain in detail about Common Mechanisms in UML.	**[10M]**
	OR	
5	Discuss about Modelling Techniques for Class Diagrams	**[10M]**

SECTION-III

6	Explain Activity Diagram with neat sketch	**[10M]**
	OR	
7	Draw use case diagram for Library management system.	**[10M]**

SECTION-IV

8	Explain Deployment Diagram with neat sketch.	**[10M]**
	OR	
9	Explain in detail about Processes and Threads, And give differentiation between them.	**[10M]**

SECTION-V

10	What is case study? Explain in detail about Business case study.	**[10M]**
	OR	
11	Explain Unified Library application with example.	**[10M]**

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