MALLA REDDY COLLEGE OF ENGINEERING &TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

Sponsored by CMR Educational Society

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DEPARTMENT OF INFORMATION TECHNOLOGY

III B.TECH I SEMESTER QUESTION BANK2019-20

LIST OF SUBJECTS

CODE	NAME OF THE SUBJECT
R17A0513	OPERATING SYSTEMS
R17A0514	COMPUTER NETWORKS
R17A0520	WEB TECHNOLOGIES
R17A0525	LINUX PROGRAMMING
R17A1201	AUTOMATA AND COMPILER DESIGN
R17A1251	INTRODUCTION TO SCRIPTING LANGUAGES

R17A0513
OPERATING SYSTEMS

R17

Code No: R17A0513

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Examinations, May 2019

Operating Systems

(Information Technology)

MODEL PAPER-1

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 evolution of operating system in detail.	**[7M]**
(b)	What is the need for system calls? Explain the types of system calls provided by an operating system with respect to memory management.	**[7M]**
	OR	
2(a)	What are the set of operating system services that provides functions that are helpful to the user?	**[7M]**
(b)	Briefly explain typical functions of an Operating-System Kernel.	**[7M]**

SECTION-II

3(a)	Explain FCFS, RR and SJF scheduling algorithm with illustrations.	**[7M]**
(b)	How parent and child relationship is created between processes? Explain how parent nd child behave on its termination.	**[7M]**
	.	
	OR	
4(a)	What is critical section problem? Explain with example?	**[7M]**
(b)	Why is round robin algorithm considered better than first come first serve algorithm?	**[7M]**

SECTION-III

5(a)	What is the need of demand paging? Explain briefly.	**[7M]**
(b)	Explain in detail about segmentation on with paging technique.	**[7M]**
	OR	
6(a)	Explain about FIFO, LRU page replacement algorithms with an example.	**[7M]**
(b)	Explain the terms in Memory Partitioning with examples: i) Fixed Partitioning ii) Dynamic partitioning.	**[7M]**

SECTION-IV

7	Explain in detail about file system structure and implementation..	**[14M]**
	OR	
8	Explain about linked allocation method of a file.	**[14M]**

SECTION-V

9(a)	How can deadlock be detected and recovered? Explain in detail with relevant example.	**[7M]**
(b)	A system has 3 devices D1, D2 and D3 and 3 processes P1, P2, and P3. P1 is holding D1 and waiting for D3. P2 is holding D2 and waiting for D1. P3 is holding D3 and waiting for D2.Draw resource allocation graph and wait-for graph. Is the system in deadlock state or not? Explain.	**[7M]**
	OR	
10(a)	Explain Capability-Based Protection system.	**[7M]**
(b)	Discuss about revocation of access rights.	**[7M]**

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R17

Code No: R17A0513

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Examinations, May 2019
Operating Systems
(Information Technology)
MODEL PAPER-2

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 various components of operating – system structure explain the simple and layered approach of operating system in details. [7M]

(b) Distinguish between the chart-server and peer-to-peer models of distributed systems [7M]

OR

2(a) Differentiate between multi programming and multi processing [7M]

(b) Explain about computer system operations in operating system [7M]

SECTION-II

3(a) What is synchronization? What are the different synchronization mechanisms? Explain in detail. [7M]

.

(b) Why is round robin algorithm considered better than first come first serve algorithm? [7M]
Take three processes that arrive at the same time in the following order and the time quantum is 2 ms.
Process Burst Time
P1 10
P2 5
P3 2
Draw Gantt chart and calculate average turnaround and waiting time using Round Robin Scheduling Algorithm without Switching.

OR

4(a) Explain inter process communication in operating system [7M]

(b) Following is the snapshot of a CPU Process CPU Burst Arrival Time [7M]
P1 75 0
P2 40 10
P3 25 10
P4 20 80
P5 45 85
Draw the Gantt chart and calculate the turnaround time and waiting time of the jobs for FCFS (First Come First Served), SJF (Shortest Job First), SRTF (Shortest Remaining Time First) and RR (Round Robin with time quantum 15) scheduling algorithms.

SECTION-III

5(a) Explain the common techniques for structuring the page table. [7M]

(b) Given page reference string: 1,2,3,2,1,5,2,1,6,2,5,6,3,1,3,6,1,2,4,3. Compare the number of page faults for LRU, FIFO and Optimal page replacement algorithm. [7M]

OR

6(a)	Explain about Demand Paging with an example.	[7M]
(b)	Differentiate Internal fragmentation and external fragmentation.	[7M]

SECTION-IV

7	Explain in detail about different file allocation methods.	[14M]

OR

8	Explain about Overview of Mass Storage Structure	[14M]

SECTION-V

9(a)	What are the different methods of handling deadlock?	[7M]
(b)	Explain about Deadlock Detection in operating system?	[7M]

OR

10(a)	What is safe state? Illustrate with a neat example	[7M]
(b)	Illustrate Banker's algorithm with proper example..	[7M]

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R17

Code No: R17A0513

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Examinations, May 2019
Operating Systems
(Information Technology)
MODEL PAPER-3

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)	**State and explain different categories of system programs.**	**[7M]**
(b)	**Explain in detail the layered approach of operating system structure**	**[7M]**
	OR	
2(a)	**State and explain the various fields of a process control block.**	**[7M]**
(b)	What are the goals and functions of operating system	**[7M]**

SECTION-II

3(a)	**Consider the following four processes, with the length of the CPU burst given in milliseconds. Process Arrival time Burst time** **P1 0 8** **P2 1 4** **P3 2 9** **P4 3 5** **Calculate the average waiting time for** **i) Preemptive STF schedule** **ii) Non preemptive STF schedule.**	**[7M]**
(b)	**Explain the bounded buffer problem and how semaphores can be used an a solution to this problem.**	**[7M]**
	OR	
4(a)	**What are the three requirements that a solution to the critical section problem must satisfy?**	**[7M]**
(b)	Explain about priority based scheduling with example?	**[7M]**

SECTION-III

5(a)	**consider the following reference string 7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1. Assume there are three frames. Apply LRU replacement algorithm to the reference sting above and find out how many page fonts are produced. Illustrate the LRU page replacement algorithm in detail and also two feasible implementation of the LRU algorithm**	**[7M]**

(b)	**Enumerate the methods for handling a deadlock**	**[7M]**
	OR	
6(a)	**Write short notes on** **i) File sharing ii) Protection**	**[7M]**
(b)	Explain briefly about Thrashing.	**[7M]**

SECTION-IV

7	Explain File System Structure with example.	**[14M]**
	OR	
8	Write short notes on Disk Management with neat diagram.	**[14M]**

SECTION-V

9(a)	List Revocation of Access Rights in operating system.	**[7M]**
(b)	Explain about Deadlock Characterization	**[7M]**
	OR	
10(a)	Explain about Domain of Protection	**[7M]**
(b)	Explain the different Disk scheduling algorithms with their comparisons.	**[7M]**

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R17

Code No: R17A0513

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Examinations, May 2019
Operating Systems
(Information Technology)
MODEL PAPER-4

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 main differences between operating systems for mainframe computers and personal computers? **[7M]**

(b) Define Essential properties of Distributed Operating Systems. **[7M]**

OR

2(a) Explain briefly about virtual machines and micro Kernels. **[7M]**

(b) Define operating system goals from user's view and system's view. **[7M]**

SECTION-II

3(a) Explain process states with neat Diagram. **[7M]**

(b) Explain the concept of semaphores. Illustrate with an example.. **[7M]**

OR

4(a) Consider the following set of process, with the length of the CPU burst given in milliseconds. [3+7] Process Burst Time **[7M]**
Priority
P1 10 3
P2 1 1
P3 2 3
P4 1 4
P5 5 2
The processes are assumed to have arrived in the order P1, P2, P3, P4, P5, all at time 0.
What is the turnaround time of each process by applying priority scheduling algorithm?

(b) Give Peterson solution for critical section problem. **[7M]**

SECTION-III

5(a) What is Belady's anomaly? Explain with one example. **[7M]**

(b) Write about Swap space management.. **[7M]**

OR

6(a) Consider the following page reference strings: **[7M]**
1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6.
How many page faults would occur for the following replacement algorithm, assuming three, four frames? Remember that all frames are initially empty, so your first unique pages will cost one fault each.
a) LRU replacement

b) Optimal replacement.

(b)	Explain briefly about LFU Page replacement algorithm.	**[7M]**

SECTION-IV

7	Explain any two methods used to protect user files with examples...	**[14M]**
	OR	
8	Explain the concept of a file. Discuss the different file access mechanisms in detail.	**[14M]**

SECTION-V

9(a)	List the conditions that must be present for deadlock to occur and for each condition give brief example or reason that illustrate a disadvantage in preventing the condition.	**[7M]**
(b)	A system has 3 devices D1, D2 and D3 and 3 processes P1, P2, and P3. P1 is holding D1 and waiting for D3. P2 is holding D2 and waiting for D1. P3 is holding D3 and waiting for D2.Draw resource allocation graph and wait-for graph. Is the system in deadlock state or not? Explain.	**[7M]**
	OR	
10(a)	Explain recovery mechanism from Deadlock	**[7M]**
(b)	Explain about Goals of Protection, Principles of Protection.	**[7M]**

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R17A0514
COMPUTER NETWORKS

R17

Code No: R17A0514

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Regular Examinations, December 2019

Computer Networks

(CSE & IT)

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.

*****

MODEL PAPER-I

SECTION-I

1. Explain ISO-OSI Reference Model with neat sketch [14M]

(OR)

2. Explain different kinds of Transmission Media.

SECTION-II

3. Explain CSMA and CSMA/CD in detail. [14M]

(OR)

4.(a) Explain Data Link Layer Switching.
(b) Explain Collision Free Protocols.

SECTION-III

5. Explain Dynamic Routing algorithms. [14M]

(OR)

6. Explain Congestion Control algorithms.

SECTION-IV

7.(a) Explain IPV4 header format. [14M]
(b) Explain DHCP.

(OR)

8.(a) Explain Transport Layer Services.
(b) Explain Crash Recovery.

SECTION-V

9.(a) Explain UDP header format. [14M]
(b) Explain TCP Connection management modeling.

(OR)

10. Explain the following
(a) FTP (b) TELNET (c) DNS

R17

Code No: R17A0514

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Regular Examinations, December 2019

Computer Networks

(CSE & IT)

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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MODEL PAPER-II

SECTION-I

1. Explain TCP/IP Model with neat sketch [14M]

(OR)

2. Explain about Unguided Transmission Media.

SECTION-II

3. Explain Pure and Slotted ALOHA in detail. [14M]

(OR)

4.(a) Explain Sliding window Protocol.

(b) Explain Spanning tree bridges.

SECTION-III

5. Explain Shortest Path Routing algorithm and Flooding. [14M]

(OR)

6. Explain Congestion Prevention Policies.

SECTION-IV

7.(a) Explain IPV6 header format. [14M]

(b) Explain ARP and RARP.

(OR)

8.(a) Explain Transport layer Connection Establishment and Connection Release.

(b) Explain Transport protocol addressing.

SECTION-V

9.(a) Explain TCP header format. [14M]

(b) Explain TCP Congestion Control.

(OR)

10. Explain the following

(a) SMTP (b) HTTP (c) DNS

R17

Code No: R17A0514

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Regular Examinations, December 2019

Computer Networks

(CSE & IT)

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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MODEL PAPER-III

SECTION-I

1. Comparision between OSI Reference Model and TCP/IP Reference Model . [14M]

(OR)

2. Explain about Switching Techniques.

SECTION-II

3.(a)Explain Error detection using CRC for the following: [14M]

Consider a message 110010 represented by the polynomial M(x)=x5+x4+x and a generating polynomial G(x)=x3+x2+1(1101).

(b) Explain Sliding window Protocol.

(OR)

4.Explain Ethernet physical and MAC sublayer and Ethernet types.

SECTION-III

5.(a)Describe Classification of IP addresses and explain CIDR. [14M]

(b) Write short notes on Packet Fragmentation.

(OR)

6. Explain Leaky bucket and Token bucket algorithms.

SECTION-IV

7.(a) Write notes on transport layer services. [14M]

(b) Describe about transport layer addressing.

(OR)

8. Explain Transport layer Connection Establishment and Connection Release.

SECTION-V

9.(a) Explain RSA Algorithm. [14M]

(b) Explain Two-way Handshake and Three-way Handshake methods.

(OR)

10. Explain the following

(a) SMTP (b) HTTP (c) DNS (d) E-Mail (e) TELNET

R17

Code No: R17A0514

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Regular Examinations, December 2019

Computer Networks

(CSE & IT)

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.

*****

MODEL PAPER-IV

SECTION-I

1. Compare OSI Reference Model and TCP/IP Model . [14M]

(OR)

2. Explain Guided Transmission Media.

SECTION-II

3.(a)Explain CRC Error detection method with Example. [14M]

(b) Explain various ALOHA Protocols.

(OR)

4.(a)Explain Fast Ethernet and Gigabit Ethernet.

(b)Explain the Following:

(a) Switch (b) Hub (c) Modem (d) Bridge (e) Router

SECTION-III

5.(a)Explain Shortest path routing. [14M]

(b)Explain Count-to-Infinity Problem.

(OR)

6. Explain the following Protocols:

(a) RARP (b) DHCP

SECTION-IV

7.(a) Explain TCP Segment header. [14M]

(b) Explain TCP Congestion Control .

(OR)

8. Explain Transport layer Connection Establishment and Connection Release.

SECTION-V

9.(a) Explain RSA Algorithm. [14M]

(b) Explain Application Layer Paradigms.

(OR)

10. Explain the following

(a) WWW (b) HTTP (c) DNS (d) E-Mail (e) TELNET

R17A0520
WEB TECHNOLOGIES

R17

Code No: **R17A0520**

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Examinations, may 2019

Web Technologies

(IT)

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.

*****

SECTION-I

1(a)	Explain the following terms related to Web:i) Internet ii)WWW iii) Web Browsers iv) URL v) HTTP	**[7M]**
(b)	What is CSS? Explain different types of CSS with examples.	**[7M]**
	OR	
2(a)	Explain the following terms related to HTML:i) image ii) List iii)Table iv) Frames v) Font vi) Physical tags	**[7M]**
(b)	Explain features of Java Script? Illustrate popup windows with event handlers in JavaScript.	**[7M]**

SECTION-II

3(a)	Define Parser. List out the differences between DOM and SAX parsers?	**[7M]**
(b)	What is DTD? Explain types of DTD with example.	**[7M]**
	OR	
4(a)	Create an HTML form which contains username, password, gender, address and a submit button. Write a java script to handle this form.	**[14M]**

SECTION-III

5(a)	Define Servlet. Explain the life cycle methods of a Servlet and Write a program by using Servlet	**[14M]**
	OR	
6(a)	Explain Reading and Initialization parameters using Servlet with example?	**[14M]**
		[7M]

SECTION-IV

7	Define JDBC. Explain JDBC Drivers with a neat diagram.	**[14M]**
	OR	
8	Explain Accessing a Database from a Servlet with example.	**[14M]**

SECTION-V

9(a)	Explain Anatomy of a JSP page.	**[7M]**
(b)	What are the elements of a JSP page? Write short notes about each element with an example.	**[7M]**

OR

10(a)	Display current date using Servlet and JSP.	**[7M]**
(b)	Explain Session tracking techniques with example.	**[7M]**

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R17

Code No: R17A0520

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Examinations, may 2019

Web Technologies

(IT)

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.

*****

SECTION-I

1(a)	Define arrays in JavaScript?	**[7M]**
(b)	Explain how to embed JavaScript code in an HTML document.	**[7M]**
	OR	
2(a)	Explain the following terms related to HTML:i) image ii) List iii)Table iv) Frames v) Font vi) Physical tags	**[7M]**
(b)	Explain features of Java Script? Illustrate popup windows with event handlers in JavaScript.	**[7M]**

SECTION-II

3(a)	Define XML? What are the advantages of xml?	**[7M]**
(b)	List the XML syntax rules in detail.	**[7M]**
	OR	
4(a)	Define an xml scheme show how an XML Scheme can be created?	**[14M]**

SECTION-III

5(a)	Explain Reading and Initialization parameters using Servlet with example?	**[14M]**
	OR	
6(a)	Define Servlet. Explain the life cycle methods of a Servlet and Write a program by using Servlet	**[14M]**

[7M]

SECTION-IV

7	Explain Reading and Initialization parameters using Servlet with example?	**[14M]**
	OR	
8	What is cookie? Explain handling cookies in Servlet with example.	**[14M]**

SECTION-V

9(a)	What are the differences between custom JSP tags and Serlets?	**[7M]**
(b)	What are the elements of a JSP page? Write short notes about each element with an example.	**[7M]**

OR

10(a)	**Explain** the difference between JSP include directive and JSP include action.	**[7M]**
(b)	Explain Session tracking techniques with example.	**[7M]**

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R17A0525
LINUX PROGRAMMING

R17

Code No: R17A0525

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Examinations, November 2019

Linux Programming

(CSE & IT)

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 briefly about text processing and process utilities.	**[7M]**
(b)	Differentiate between shell variables and environment variables and user defined variables.	**[7M]**
	OR	
2(a)	Explain the following commands with syntax, options and examples:i)head ii)tail.	**[7M]**
(b)	Write a shell script to count the number of lines in a text file without using wc command.	**[7M]**

SECTION-II

3(a)	Define a system call? Explain system calls for file I/O operations.	**[7M]**
(b)	Write the syntax and illustrate for the following i)opendir ii) readdir iii) closedir iv) rewinddir	**[7M]**
	OR	
4(a)	Write about File and Directory maintenance system calls? Give Syntax and examples.	**[14M]**

SECTION-III

5(a)	What is an orphan process? Write a program to illustrate orphan process.	**[7M]**
(b)	Define Signals. What do you mean by Unreliable Signals? Explain.	**[7M]**
	OR	
6(a)	Write the syntax of six versions of 'exec' functions and also explain how these functions differ from each other.	**[7M]**
(b)	What are the signals that are not ignored or blocked? Explain the reason behind it with an example.	**[7M]**

SECTION-IV

7	What are pipes? Explain with illustration how pipes are created and used in IPC	**[14M]**
	OR	
8	Compare the IPC functionality provided by message queues and FIFO's. Write a program and explain how to transfer a large amount of data between two processes using message queues.	**[14M]**

SECTION-V

9(a)	Explain with a program how to copy file data from server to client using shared memory	**[14M]**
	OR	
10(a)	Explain how to control a shared-memory segment.	**[7M]**
(b)	Explain the following socket APIs with syntax:i)bind() ii) listen()	**[7M]**

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R17

Code No: R17A0525

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

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III B.Tech I Semester Examinations, November 2019

Linux Programming

(CSE & IT)

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.

*****

SECTION-I

1(a)	Write a shell script which checks whether a given file contains a given word. If it does, the script should output the message "The file contains the word"; if not, it should output the message "The file doesn't contain the word".	**[7M]**
(b)	Explain ftp and its importance in Linux?	**[7M]**
	OR	
2(a)	Define grep. Write a grep command to display the lines which does not matches all the given pattern.	**[7M]**
(b)	Describe about I/O Redirection operations and built in variables in Shell.	**[7M]**

SECTION-II

3(a)	Differentiate soft link and hard link with examples.	**[7M]**
(b)	Describe usage of dup(), dup2() system calls with example.	**[7M]**
	OR	
4(a)	Explain the kernel support for file system.	**[7M]**
(b)	Explain about symlink ( ) function with example program.	**[7M]**

SECTION-III

5(a)	Differentiate between fork( ) and vfork( ).	**[7M]**
(b)	Explain clearly the Signal concept with a suitable example.	**[7M]**
	OR	
6(a)	Explain about process states.Describe and illustrate any one process system call	**[7M]**
(b)	Describe SIGKILL and SIGINT with examples.	**[7M]**

SECTION-IV

7	Explain about IPC using named pipes and unnamed pipes	**[14M]**
	OR	
8	What are Semaphores. Explain about the kernel support for semaphores with a program.	**[14M]**

SECTION-V

9(a)	Explain how to attach and detach a shared-memory segment.	**[7M]**
(b)	Write the C socket program for connection oriented protocol.	**[7M]**
	OR	
10(a)	Explain how to control a shared-memory segment.	**[7M]**
(b)	Write a C Socket Program for Linux with a Server and Client Example Code.	**[7M]**

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R17

Code No: R17A0525

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Examinations, November 2019

Linux Programming

(CSE & IT)

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 various process utilities available in linux..	**[7M]**
(b)	Write a shell script that deletes all lines containing a specified word in one or more files	**[7M]**
	OR	
2(a)	What is bash in shell programming?.Explain	**[7M]**
(b)	Write about shell variables in Unix shell syntax.	**[7M]**

SECTION-II

3(a)	Explain the support given by kernel for files in detail..	**[7M]**
(b)	What do you mean by a hole in a file? How does the use of lseek() result in hole in a file? Explain with an example program.	**[7M]**
	OR	
4(a)	What does directory file in UNIX contain?Explore the following commands with examples.i)mkdirii)rmdiriii)chdiriv) getcwd.	**[14M]**

SECTION-III

5(a)	What is Unix process status (ps) and explain the procedures for process creation, replacing a process image, waiting for a process, process termination, Zombie process.	**[14M]**
	OR	
6(a)	How Unix kernel provides support for 'signals' and write about kill, raise, alarm, pause, abort and sleep functions used in Unix signals.	**[14M]**

SECTION-IV

7	Describe various APIs of Message queues that are used for inter process communication.	**[14M]**
	OR	
8(a)	Describe IPC_PERM structure and list its advantages and disadvantages.	**[7M]**
(b)	Describe the operations of semctl( ) with a sample C program.	**[7M]**

SECTION-V

9(a)	Explain with a program how to copy file data from server to client using System V IPC mechanism shared memory	**[14M]**
	OR	
10(a)	Explain how to control a shared-memory segment.	**[7M]**
(b)	Explain briefly about the following socket APIs with clear syntax: a)accept() b) connect()	**[7M]**

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R17

Code No: R17A0525

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

III B.Tech I Semester Examinations, November 2019

Linux Programming

(CSE & IT)

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)	Write a shell script to find whether a given argument is a regular file or directory	**[7M]**
(b)	Discuss about Associative arrays in bash.	**[7M]**
	OR	
2(a)	Develop an AWK program to summarize from the list of all processes, a count of processes run by every user (including root).	**[7M]**
(b)	Write about text processing utilities.	**[7M]**

SECTION-II

3	Differentiate between the following terms:a) getc( ) Vs fgetc( ) b) stat( ) Vs fsat( ) c) printf( ) Vs fprint( )d) scanf( ) Vs fscanf( ).	**[14M]**
	OR	
4	Explain the directory and file related system calls.	**[14M]**

SECTION-III

5	What is COW? Discuss on a) fork( ) b) vfork( )..c) Various forms of exec()	**[14M]**
	OR	
6	Write a c program that accepts two small numbers as arguments and then sums the two numbers in a child process. The sum should be returned by child to the parent as its exit status and the parent should print the sum?.	**[14M]**

SECTION-IV

7	Write a program and explain how to transfer a large amount of data between two processes using Message queues.	**[14M]**
	OR	
8	Explain the following concepts about pipes: a) Pipes between two process b) Pipes among three process in a shell.	**[14M]**

SECTION-V

9(a)	Compare various IPC mechanisms.	**[7M]**
(b)	Describe about Unix API for shared memory with examples.	**[7M]**
	OR	
10(a)	Explain how to control a shared-memory segment.	**[7M]**
(b)	Explain briefly about the following socket APIs with clear syntax: i)socket() ii)bind() iii) listen() iv) accept() v) connect( )	**[7M]**

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R17A1201

AUTOMATA AND COMPILER DESIGN

Code No: R17A1201

R17

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

B. Tech III Year I Semester

AUTOMATA AND COMPILER DESIGN

(Information Technology)

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.

SECTION-I

1.a) Construct finite automata that accept a string w, where w is binary number divisible by 3.

b) Define ambiguity. Is the following grammar ambiguous? [7]

$E \rightarrow E + E$

$E \rightarrow E - E \mid id$

OR

2.a) Draw a NFA that accept the languages that have 'a' as third symbol from right hand side.

b) How to convert a regular expression to NFA? Explain with example. [7]

SECTION-II

3.a) Explain syntax directed definitions. Define syntax directed definition for simple desk calculator.

b) Briefly give a note on L-attributed grammars. [7]

OR

4.a) Give a model for LR parser. Write an algorithm for LR parsing.

b) Define Intermediate code generation. Explain abstract syntax tree with an example. [7]

SECTION-III

5.a) Define type checking. Explain the static checking and dynamic checking.

b) Explain the context free and context sensitive languages with their recognizers. [7]

Q6 Give an algorithm to test c Types. Which among the following expressions are equivalents, Justify.

a) e1=integer → e1
b) e2=integer → (integer → e2)
c) e3=integer → (integer → e1) [7]

SECTION-IV

7.a) What is natural loop? Write an algorithm for constructing natural loop.
b) Explain the term Run Time Support and Storage Organization. [7]

OR

8) Define code optimization. Explain in detail about the Principal sources of optimization and optimization techniques. [7]

SECTION-V

9. Explain the code generation algorithm and generate code for the following Expression:
X = (a – b) + (a + c) [7]

OR

10.a) State the issues in code generation process? Explain in detail.
b) What is a basic block? With suitable example – discuss various transformations on the basic block. [7]

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Code No: R17A1201 **R17**

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

B. Tech III Year I Semester

AUTOMATA AND COMPILER DESIGN

(Information Technology)

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.

SECTION-I

1.a) Construct a Finite Automata accepting all strings over {0,1}
i) Having odd number of 0's and ii) having even number of 1's?

b) Write about the identity rules for regular expressions. [7]

OR

2.a) Construct a minimal DFA accepting all strings over{0,1} that do not contain 101 as a sub string?

b) Explain in brief about Applications of Finite Automata. [7]

SECTION-II

3.a) Differentiate between Top down and Bottom up Parsing methods.

b) Construct CLR parser for the grammar S→L=R,S→R,L→*R,R→L. [7]

OR

4.a) Define Ambiguous grammar? Explain it with an Example.

b) Construct SLR Parser for the grammar S→CC,C→cC/d. [7]

SECTION-III

5.a) Describe about type expressions.

b) Explain in brief about Inherited Attributes with an example. [7]

OR

6.a) Discuss about Chomsky hierarchy of languages and generators.

b) Explain about Type checking of overloaded functions and operators. [7]

SECTION-IV

7.a) Define Symbol table? Discuss various symbol table organization techniques.

b) What is Heap storage allocation? Explain in detail. [7]

OR

8.a) Discuss about the Stack allocation strategy of Run time environment with an example.

b) What is dangling Reference in storage allocation? Explain with an Example. [7]

SECTION-V

9). Explain in detail the generic code generation algorithm. [7]

OR

10.a) Explain in brief about the issues in the design of a code generator.

b) Explain reducible and non reducible flow graphs with examples. [7]

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Code No: R17A1201 **R17**

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

B. Tech III Year I Semester

AUTOMATA AND COMPILER DESIGN

(Information Technology)

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.

SECTION-I-I

1.a) Consider the following grammar

lexp→ atom | list

atom→ number | identifier list→ (lexp_seq)

lexp_seq→ lexp_seq lexp | lexp

Answer the following:

b) Remove left recursion.

c) Construct FIRST and FOLLOW set for the non-terminals of the resulting grammar.

d) Construct LL(1) parsing table for the resulting grammar.

e) Show that the resulting grammar is LL(1).

f) Show the parsing action of LL (1) parser for the input string (a (b (2)) (c)). [7]

OR

2.a) Construct an LL(1) parsing Table for the following grammar

S → aBDh B → cC

C → bC | ∈

D → EF

E → g | ∈

F → f | ∈

b) Construct DFA equivalent to the NFA ({p, q, r, s}, {0,1}, δ, p, {s}) where the transition

States	0	1
p	p, q	p
q	r	r
r	s	-
s	s	s

[7]

SECTION-II

3.a) Discuss the construction of **LR** parser. What are the various data structures used in **LR** parser design? Discuss the construction of **ACTION[ ]** and **GOTO[ ]** table.

b) Write syntax directed definition to implement of a desk calculator with an LR parser and show the evaluation of expression '95*4 +5'. [7]

OR

4.a) Describe the syntax directed translation procedure for assignment statements with integers and mixed types and explain.

b) Construct LALR(1) parsers for the following grammar. [7]

S → L = R

S → R L
→ * R L
→ id R
→ L

SECTION-III

5.a) What is phase structure grammar? State and explain with suitable examples, Chomsky classification of grammar. Give the corresponding language generated by each grammar and their relation.

b) **S→aAa | bBb|∈ A→C |a**
B→C|b C→CDE|∈
D→A |B|ab

For the above grammar eliminate the useless symbols(if any). Eliminate ∈-production, Eliminate unit production, then convert the grammar to Chomsky normal form. [5+5]

OR

6.a) What is phase structure grammar? What is Chomsky normal form of grammar? Explains the steps used to reduce a CFG to CNF.

b) Convert the following grammar into Chomsky normal form. [5+5]

S→ AAA | B

A→aA | B B→∈

SECTION-IV

7.a) Give the block diagram of organization of code optimizer. What are the advantages of the organization of code optimizer?

b) What is dynamic storage allocation? Why is not static allocation sufficient for everything?

OR

8.a) What is activation record? Discuss the structure of a typical activation record. What do you mean by a layout of a activation record?

b) Explain the machine dependent and machine independent code optimization? What are their advantages? How to represent the dummy blocks with no statements indicated in global dataflow analysis

SECTION-V

9.a) Define a Directed Acyclic Graph. Construct a DAG and write the sequence of instructions for the expression a + a * (b – c) + (b – c) * d .

b) Give the sequence of three-address code instructions corresponding to the following fragment using the above attribute grammar [5+5]

for i= 1 to n step m+k do
s:= s+i

OR

10.a) Explain the code generation process involving the environment of the code generator. Explain the steps in code generation of the expression **(A + B) / C + D.** Assuming two machine registers are available.

b) Explain the various issues in the design of code generation. Construct the DAG for the following basic block. [5+5]

d : = b * c e : = a
+b b : = b * c a : =
e – d

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R17A1251

INTRODUCTION TO SCRIPTING LANGUAGES

R17

Code No: R17A01251

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Model Question Paper
Introduction to Scripting Languages
(IT)

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.

*****

SECTION-I

1(a)	Explain various built-in operators and pattern matching modifiers in Perl.	**[10M]**
(b)	What are the characteristics of Scripting Languages	**[4M]**
	OR	
2(a)	Define regular expression. Explain about Regular Expressions in Perl?	**[7M]**
(b)	List out the data types that Perl can handle?	**[7M]**

SECTION-II

3(a)	Explain any four Text Formatting Tags in HTML.	**[10M]**
(b)	Discuss about the advantages of java script	**[4M]**
	OR	
4(a)	What are Style Sheets? List down the ways of including style information in a document.	**[7M]**
(b)	How scripting language is differentiated from HTML	**[7M]**

SECTION-III

5(a)	Explain the process of event handling in java script	**[7M]**
(b)	Give commands to execute a Python script	**[7M]**
	OR	
6(a)	Explain the importance of indentation in python with an example.	**[7M]**
(b)	Demonstrate the usage of frames with an example in java script	**[7M]**

SECTION-IV

7(a)	Explain Tuple Assignment with example.	**[7M]**
(b)	Can tuple be a return type. Justify your answer.	**[7M]**
	OR	
8(a)	How to merge two dictionaries? Give an example.	**[7M]**
(b)	When dictionary is used instead of a list?	**[7M]**

SECTION-V

9	Explain in detail about Control flow structures	**[14M]**
	OR	
10(a)	Define fruitful functions in python.	**[7M]**
(b)	Define range () function and its syntax.	**[7M]**

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R17

Code No: R17A01251

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Model Question Paper
Introduction to Scripting Languages
(IT)

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.

*****

SECTION-I

1(a)	Discuss the uses of Scripting Languages	**[10M]**
(b)	Explain the different types control statements available in Perl. Discuss about them with examples.	**[4M]**
	OR	
2(a)	Explain about how to access, create and process an array with an example in Perl.	**[7M]**
(b)	What is "scalar" context, "list" context, "void" context? Would you be able to write an example to demonstrate how they differ?	**[7M]**

SECTION-II

3(a)	Explain how to include an image in an HTML page with the help of the tags.	**[7M]**
(b)	List out the uses of style sheets and font characteristics permitted in CSS	**[7M]**
	OR	
4(a)	Discuss about java script control structures	**[14M]**
(b)	Write an example program to print Fibonacci series with the help of functions in javascript	

SECTION-III

5(a)	List The Various Dialog Boxes In Java Script	**[7M]**
(b)	How Validation Is Done In Javascript. Give An Example.	**[7M]**
	OR	
6(a)	How to take user defined input in python with an example program.	**[7M]**
(b)	List and explain the data types in python	**[7M]**

SECTION-IV

7	Write code snippets in Python to perform the following a. Accessing Elements of a Tuple b. Modifying Elements of a Tuple c. Deleting Elements of a Tuple	**[14M]**
	OR	
8	Explain the following: a. List Slicing b. List Accessing Methods c. List Cloning	**[14M]**

SECTION-V

9(a)	Discuss the usage of break, continue, pass statements in python	**[14M]**
(b)	How many ways are there in python to pass arguments to a function	
	OR	
10(a)	Explain the concept of scope of variables: Global and Local in python	**[7M]**
(b)	Explain how python handles variable length arguments	**[7M]**

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R17

Code No: R17A01251

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Model Question Paper
Introduction to Scripting Languages
(IT)

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.

*****

SECTION-I

1(a)	What is a Subroutine in PERL? What is its purpose? Give an example.	**[8M]**
(b)	How can create hashes, manipulate hashes and invert a hash in Perl.	**[6M]**
	OR	
2(a)	Differentiate between Programs and Scripts	**[7M]**
(b)	Is scripting is useful in terms of Web. If so, how it is useful.	**[7M]**

SECTION-II

3(a)	Develop the web page for employee management system and validate all the fields using java script.	**[14M]**
	OR	
4(a)	Write a JavaScript function to find the average of the individual numbers in a given digit.	**[7M]**
(b)	Explain about cascading style sheets in detail. i. Style sheet rules ii. Styling a page iii. Linking style sheets iv. Inline style sheets.	**[7M]**

SECTION-III

5(a)	Design a web page with a text box (username) where the user can enter a name and another text box (ID) where the user enter an only four digit ID.NO and a button "validate". Validate the entered username and ID field for the following using java script. i. Both the fields should not be empty ii. Name field should have alphabets iii. ID field should have numeric.	**[14M]**
	OR	
6(a)	In python, single & and double quoted strings are the same? What is the purpose of triple quotes in multiline python program?	**[7M]**
(b)	What is the need of Python programming? Discuss the python's history & applications of python.	**[7M]**

SECTION-IV

7(a)	Explain the order of evaluations of expressions in python.	**[7M]**
(b)	Explain about operators in Python	**[7M]**
	OR	
8(a)	Write about sets & dictionaries with examples.	**[7M]**
(b)	Why tuples are used. Explain tuples comparing with lists	**[7M]**

SECTION-V

9(a)	Write about the functions that return a result in python	**[7M]**
(b)	Write a python function to check whether the given string is palindrome or not.	**[7M]**
	OR	
10	Discuss Function arguments in Python	**[14M]**

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R17

Code No: R17A01251

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)
III B.Tech I Semester Model Question Paper
Introduction to Scripting Languages
(IT)

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.

*****

SECTION-I

1(a)	Discuss the concept of Web Scripting	**[5M]**
(b)	Explain how regular expressions are evaluated in PERL.	**[13M]**
	OR	
2(a)	In how many ways, scripting is useful now.	**[7M]**
(b)	How to evaluate scalar expressions in PERL.	**[7M]**

SECTION-II

3(a)	Explain any 5 advanced HTML tags.	**[10M]**
(b)	Discuss about objects in JavaScript	**[4M]**
	OR	
4(a)	Explain importance of Frame tag in HTML.	**[7M]**
(b)	Explain JavaScript Object: Window, Document.	**[7M]**

SECTION-III

5	Explain in detail about built-in objects in JavaScript.	**[14M]**
	OR	
6(a)	What are the advantages of Python. How to run python scripts.	**[7M]**
(b)	Discuss about input-output functions in python.	**[7M]**

SECTION-IV

7	Explain about operators in python	**[14M]**
	OR	
8(a)	Differentiate between dictionaries and sequences	**[7M]**
(b)	What is a set in python. Discuss its methods.	**[7M]**

SECTION-V

9(a)	How to call functions in python.	**[7M]**
(b)	Explain the concept of argument passing in python.	**[7M]**
10(a)	Write a python script to find the reverse of a given number	**[7M]**
(b)	Write a python script to split the array and add the first part at the end.	**[7M]**

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