MALLA REDDY COLLEGE OF ENGINEERING &TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India)

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DEPARTMENT OF INFORMATION TECHNOLOGY

III B.TECH I SEMESTER QUESTION BANK 2018-19

LIST OF SUBJECTS

CODE	NAME OF THE SUBJECT
R15A0527	LINUX PROGRAMMING
R15A0513	OPERATING SYSTEMS
R15A0520	WEB TECHNOLOGIES
R15A0512	COMPILER DESIGN
R15A0524	DISTRIBUTED SYSTEMS
R15A0065	MANAGEMENT SCIENCE

R15A0527
LINUX PROGAMMING

Code No: 117EE **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech IV Year I Semester Examinations, March - 2017

LINUX PROGRAMMING

Time: 3 Hours **(Computer Science and Engineering)** **Max. Marks: 75**

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

Part- A (25 Marks)

1.a) What are the responsibilities of a shell? [2]

b. Mention the functionality of the following commands: find, ls, umask. [3]

c. What is the purpose of dot and dot dot directories in the file system? [2]

d) Differentiate between soft linking and hard linking. [3]

e) Name the advantages of waitpid( ) over wait( ). [2]

f) Discuss signal( ) and abort( ) system calls briefly. [3]

g) Give the advantages of using named pipes. [2]

h. What is the effect of O-NDELAY flag on pipes and fifos? [3]

i. Give the differences between IPv4 and IPv6. [2]

j. Explain the system call used to create a shared memory segment. [3]

Part-B (50 Marks)

2.a) Write an awk script to find the largest of 10 integers.

b. Explain various networking utilities in LINUX with clear syntax, few options and example. [5+5]

OR

3.a) With an example script explain the differences between 'while' and 'until' statements.

b. List and explain the various meta characters available in shell programming. [5+5]

4. Discuss the need and importance of lseek( ) system call with its relative merits and drawbacks. [10]

OR

5. Write the syntax of the following system calls and explain with an example code.
a.) telldir b) mkdir [5+5]

6.a) What are process identifiers? Mention the commands for getting different IDs of calling process.

b. Write a program that demonstrates the use of exit( ). [5+5]

OR

7.a) What is a signal? How can it be generated? Also explain kernel's action on signal.

b. Differentiate between reliable signals and unreliable signals. [5+5]

8. Describe various APIs of Message queues that are used for inter process communication. [10]

OR

9.a) Give the advantages and disadvantages of IPC_PERM structure.

b. Describe the operations of semctl( ) with a sample C program. [5+5]

10. Explain with a program how to copy file data from server to client using System V IPC mechanism shared memory. **OR** [10]

11. Explain briefly about the following socket APIs with clear syntax:

a.accept( ) b.connect( ) [5+5]

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Code No: 117EE **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech IV Year I Semester Examinations, November/December - 2017

LINUX PROGRAMMING

(Computer Science and Engineering)

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

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART- A

(25 Marks)

1.a) What are shell responsibilities? [2]

b. What are the applications of awk? [3]

c. What are hard links? [2]

d) Write about file locking? [3]

e) What are reliable signals? [2]

f. Differentiate threads and processes. [3]

g) What is IPC? [2]

h) Explain popen. [3]

i. What are Berkeley sockets? [2]

j. List the APIs for shared memory. [3]

PART-B

(50 Marks)

2.a) Explain associative arrays.

b. Write a shell script to find the factorial of a number. [5+5]

OR

3.a) Develop an AWK program to summarize from the list of all processes, a count of processes run by every user (including root).

b. Write about text processing utilities. [5+5]

4. Differentiate between the following terms:

a.)getc( ) Vs fgetc( ) b) stat( ) Vs fsat( )

c.printf( ) Vs fprint( ) d.)scanf( ) Vs fscanf( ). [10]

OR

5.a) Explain the following system calls:

i.open( ) ii) seek( ) iii) read( ) iv) link( )

b. Explain directory handling system calls. [5+5]

6.a) Differentiate between fork( ) and vfork( ).

b. Write the syntax of six versions of exec functions and also explain how these functions differ from each other. [5+5]

OR

7. 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? [10]

8. Write a program and explain how to transfer a large amount of data between two processes using Message queues. [10]

OR

9. Explain the following concepts about pipes:
   a.Pipes between two process
   b.Pipes among three process in a shell. [5+5]

10. Explain with a program how to copy file data from server to client using shared memory. [10]

OR

11.a) Explain briefly about the following socket APIs with clear syntax:
   i.socket( ) ii) bind( ) iii) listen( ) iv) accept( ) v) connect( )

b. Compare various IPC mechanisms. [5+5]

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Code No: 115ED

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech III Year I Semester Examinations, November - 2015

LINUX PROGRAMMING

(Information Technology)

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

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A (25 Marks)

1.a) Illustrate 'rlogin' command with example. [2]

b. Explain the significance of single quote and double quote. [3]

c. Define stat () function with example. [2]

d. Write the difference between fgetc() and getc() system calls. [3]

e. What are the uses of fork() function? [2]

f. Write the syntax of following functions. Explain each argument. [3]
i.kill() ii) raise() iii) alarm()

g. What is a Message queue? [2]

h. What is FIFO? Why FIFO?s are called as named pipes? [3]

i. Explain about shmcntl () function. [2]

j. Differentiate stream sockets and raw sockets. [3]

PART - B (50 Marks)

2.a) Explain **ftp** and its importance in Linux?

b. 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". [5+5]

OR

3.a) Define grep. Write a grep command to display the lines which does not matches all the given pattern.

b. Describe about I/O Redirection operations and built in variables in Shell. [5+5]

c. 4.a) Differentiate soft link and hard link with examples.

b. Describe usage of dup(), dup2() system calls with example. [5+5]

OR

5.a) Explain the kernel support for file system.

b. Explain about symlink ( ) function with example program. [5+5]

c. 6.a) What is an orphan process? Write a program to illustrate orphan process.

b. Define Signals. What do you mean by Unreliable Signals? Explain. [5+5]

OR

7.a) What is the need of exec( ) system call?Write a C program to illustrate exec( ) function

b. Describe SIGKILL and SIGINT with examples. [5+5]

8.a) What is a pipe? Using pipe, how IPC can be implemented.

b. Compare the IPC functionality provided by message queues and FIFO?s. What are the advantages and drawbacks of each? Explain briefly. [5+5]

OR

9.a) Illustrate pipes? Explain their limitations. Explain how pipes are created and used in IPC with an examples.

b. Write a program and explain how to transfer a large amount of data between two processes using message queues. [5+5]

10.a) Explain with a program how to copy file data from server to client using shared memory

b. What are Berkeley socket sand write a note on ?socket options?? [5+5]

OR

11.a) Differentiate all IPC mechanisms with examples.

b. Write a C Socket Program for Linux with a Server and Client Example Code. [5+5]

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R13

Code No: 115ED JJ

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B.Tech III Year I Semester Examinations, November/December - 2016
LINUX PROGRAMMING
(Information Technology)

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) Draw the architecture of UNIX like systems. [2]
b. Explain 3 network related commands. [3]
c) What are symbolic links? How is it different from hard links? [2]
d) Why do we need chmod and fchmod functions? [3]
e. What are the uses of fork function? [2]
f. What is a zombie process? [3]
g) Define Inter process communication. [2]
h) State the importance of file locking. [3]
i) List out some APIs associated for shared memory. [2]
j) Write the differences between unix domain and inter domain. [3]

PART - B

(50 Marks)

2.a) Explain briefly about text processing and process utilities.
b. Differentiate between shell variables and environment variables and user defined variables. [6+4]

OR

3.a) Explain the following commands with syntax, options and examples:
i.head ii) tail
b. Write a shell script to count the number of lines in a text file without using wc command. [4+6]

4. Write about File and Directory maintenance system calls? Give Syntax and examples. [10]

OR

5.a) Define a system call? Explain how the system call differs from that of the library functions.
b. Write the syntax for the following
i.opendir ii) readdir iii) closedir iv) rewinddir [6+4]

6.a) Differentiate between fork( ) and vfork( ).

b. Explain clearly the Signal concept with a suitable example. [4+6]

OR

7.a) Write the syntax of six versions of 'exec' functions and also explain how these functions differ from each other.

b. What are the signals that are not ignored or blocked? Explain the reason behind it with an example. [6+4]

8. What are pipes? Explain their limitations. Explain how pipes are created and used in IPC with an examples. [10]

OR

9.a) Write a program to illustrate msgsnd( ) and msgrcv( ) system calls.

b. What is meant by name space? Give the name spaces of various IPC mechanisms in Unix. [5+5]

10.a) Explain how to attach and detach a shared-memory segment.

b. Explain the working of 'fork' and 'join' in TCP/IP sockets. [5+5]

OR

11.a) Explain how to control a shared-memory segment.

b. Explain briefly about the following socket APIs with clear syntax: [4+6]
i.bind( ) ii) listen( )

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Code No: 115ED **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech III Year I Semester Examinations, March - 2017

LINUX PROGRAMMING

(Information Technology)

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

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) List some text processing Linux utilities. [2]
b. Give any 3 examples for control structures in shell programming. [3]
c. What is the difference between Linux file system and Windows file system? [2]
d. How to identify your home directory in shell command line? [3]
e. Where do we use 'nice' command in Unix C Shell? [2]
f. What are the advantages of POSIX.1b timers over Unix timers? [3]
g. Describe briefly the procedure for IPC between processes on a single computer. [2]
h. Write about POSIX.1b semaphores. [3]
i. What are recvfrom and sendto functions in UDP sockets. [2]
j. What is 'fcntl'function in socket programming? [3]

PART - B

(50 Marks)

2. Write about the following Unix commands with example.
Cal, date, echo, printf, bc, script, mailx, who, tty, sty. [10]

OR

3.a) What is bash in shell programming?
b. Write about shell variables in Unix shell syntax. [5+5]

4. Describe Unix file system advantages and also state different commands used in System calls for I/O operations. [10]

OR

5.a) What does directory file in UNIX contain?
b. Explore the following commands with examples. [5+5]
i. mkdir ii) rmdir iii) chdir iv) getcwd

6. 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. [10]

OR

7. How Unix kernel provides support for 'signals' and write about kill, raise, alarm, pause, abort and sleep functions used in Unix signals. [10]

8. List some APIs used for message queues and construct a sample code for Client – Server application using messages. [10]

OR

9. Write short notes on the following:

a.API's for semaphores

b.File locking with semaphores. [5+5]

c. 10.a) Describe about Unix API for shared memory with examples.

b. Create a client-server interaction example using semaphores-shared memory. [5+5]

OR

11.a) What is socket address structure and compare various socket address structures?

b. Elaborate bind and listen functions in TCP sockets. [5+5]

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B. Tech IV Year I Semester Examinations
Linux Programming
(Computer Science and Engineering)
Model Paper-1

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

Note: This question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART – A (Marks 25)

Answer All the Questions

1.A). What is shared memory ?
B). Explain various exit status ?
C). Explain about finger command ?
D). Write short notes on zombie process ?
E). Explain about kill and raise functions ?
F). Define the system call ?
G). What is the purpose of SED ?
H). What are the signal that are not ignored or blocked ?
I).Explain the concept between two processes ?
J).Explain various exit status ?

PART – B (Marks 5 x 10 = 50)

2. Explain how TCP connection established and terminated ?

OR

3. Explain about a).operations in awk b).patterns in awk
4. What are the operations and addresses performed by SED

OR

5. explain in detailed the functions in AWK ?
6. Explain the following a).chmod b).symlink c).mkdir d).rmdir

OR

7. Write a program to demonstrate the use of fstat() functions ?
8. Write short notes on formatted I/O

OR

9. Explain in detail the scanning directories
10. Explain in brief the kernel support for process

OR

11. Give an example of client and server programs ?

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B.Tech IV Year I Semester Examinations

Linux Programming

(Computer Science and Engineering)

Model Paper-2

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

Note: This question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

Answer All the Questions **PART – A (Marks 25)**

1.A).Write about Grep command
B).Explain about du,df
c).Explain the system call umask()
d).What is an Orphan Process ?
e).What are pipes ?
f).what is the purpose of SED
g).Define the system call ?
h).What are reliable signals
i).What is file mode creation mask ?
j).write about semaphores

PART – B (Marks 5 x 10 = 50)

2. a).Explain how TCP connection established and terminated ?
   b).Write notes on byte ordering function

OR

3. Differentiate between multithreading programming and single thread programming
4. Explain differentiate between line editor and stream editor

OR

5. Explain the following with examples
   a).Process creation b).process termination c) signal functions d) reliable signals
6. Write a shell script to find and delete all files with the word “Linux”

OR

7. Explain in detail about various file types?
8. Write short notes on formatted I/O

OR

9.Explain in detail the scanning directories
10.Explain in brief the kernel support for process

OR

11.write a program to demonstrate the function of a pipe

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B.Tech IV Year I Semester Examinations
Linux Programming
(Computer Science and Engineering)
Model Paper-3

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

Note: This question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART – A (Marks 25)

Answer All the Questions

1.a).Expalin about network commands
b).What are the file permissions
c). What are the operations in SED
d).Write short notes on formatted I/O
e).explain about chmod ?
f).write short notes on zombie process
g).what is meant by process?
h).explain about kill and raise functions
i).what are the named pipes?
j)what are the message queue ?

PART – B (Marks 5 x 10 = 50)

2).a).what are the benefits of multithreading programming ?
b).what are the differentiate between process and thread ?

OR

3).explain about a) thread synchronization b)thread synchronization with mutux
4).what are the operations and addresses performed by SED

OR

5).explain in detailed the functions in AWK ?
6)write a program to check and report file descriptor of all opened files ?

OR

7)write a program to demonstrate the use of fstat() functions ?
8.Write short notes on Linux API's

OR

9.Explain the concept of semaphore and shared memory example
10.Write a program to protect a variable in a critical section with mutexes ?

OR

11.Give an example of client and server programs ?

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

B.Tech IV Year I Semester Examinations

Linux Programming

(Computer Science and Engineering)

Model Paper-4

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

Note: This question paper contains two parts A and B. Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART – A (Marks 25)

Answer All the Questions

1. a).What is pipes?
   b).Define a System Call?
   c).Write short notes Process creation?
   d).What is file mode creation mask?
   e).Write about Mutexes?
   f). what is shared memory?
   g). Explain about finger command?
   h). what are the signal that are not ignored or blocked?
   i). Explain the concept between two processes
   j). Explain various exit status?
2. Explain various file handling utilities and process utilities ?

OR

3.Explain about a).operations in awk b).patterns in awk

4. What are the responsibilities of a shell? Explain?

OR

5. Explain the shell scripts debugging concept in details?
6. Explain the following a).chmod b).symlink c).mkdir d).rmdir

OR

7. Write short notes on a) zombie process b).orphan process
8. Explain the kernel support for Signals

OR

9. Explain the concept of semaphore and shared memory
10. What are message queue? Explain the concept of kernel support for message

OR

11. Explain the concept of Linux system calls for connection –oriented and Connectionless protocol

R15A0513

OPERATING SYSTEM

Code No: XXXXX

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
B. Tech III Year I Semester Examinations
Operating Systems

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 sections. Answer any one full question from each section. Each question carries 10 marks and may have a, b, c as sub questions.

MODEL PAPER - 1

PART-A

1) a)What is kernel ? [2M]
b) Briefly Explain dual mode operation. [3M]
c) Define soft affinity and hard affinity. [2M]
d) Briefly Explain Thread scheduling. [3M]
e) Define Swapping. [2M]
f) Briefly Explain allocation of frames. [3M]
g) What is Latency time ? [2M]
h) Explain file system structure. [3M]
i) What is Access matrix. [2M]
j) Briefly Explain resource request algorithm. [3M]

PART-B

2)What is a system call? Explain different types of system calls. [10M]

(OR)

3)Explain briefly about special purpose systems ?
4)What is SRTF Scheduling algorithm? Explain with a neat gantt chart. [10M]

(OR)

5)What is a monitor? How are monitors used in solving the Dining Philosophers Problem ?
6) Explain about Paging with a neat block diagram. [10M]

(OR)

7)Consider the page reference string 1,3,4,0,5,3,2,1,0,4,5,2.How many page faults occur for the LRU and Optimal replacement algorithms with 4 frames each ?
8)Explain about File system interface. [10M]

(OR)

9)Explain file allocation methods.
10)Explain the three implementation methods of access matrix. [10M]

(OR)

11)Explain the following
a) deadlock detection b) deadlock recovery

Code No: XXXXX

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
B. Tech III Year I Semester Examinations
Operating Systems

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 sections. Answer any one full question from each section. Each question carries 10 marks and may have a, b, c as sub questions.

MODEL PAPER-2

PART-A

1)a) List the objectives of Operating Systems ? [2M]
b)Differentiate Simple batch systems and Multiprogrammed Batch systems. [3M]
c)Define Contention scope. [2M]
d)Explain multiprocessor scheduling. [3M]
e)Define Thrashing [2M]
f)Explain Demand Paging. [3M]
g)What is seek time ? [2M]
h)Briefly explain file system mounting. [3M]
i)What is safe state ? [2M]
j)Explain revocation of access rights. [3M]

PART-B

2) Explain about various types of operating systems. [10M]

(OR)

3) Explain operating systems services and functions.
4) Explain in detail about the various scheduling algorithms [10M]

(OR)

5) State and Explain critical section problem.

6) Explain paging concept in Operating Systems. [10M]

(OR)

7) Explain about segmented memory management with a neat block diagram.
8) Explain about file system interface. [10M]

(OR)

9) Explain file allocation methods.
10) Enumerate and explain the necessary conditions for deadlocks. [10M]

(OR)

11) Explain bankers algorithm for deadlock avoidance.

Code No: XXXXX

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
B. Tech III Year I Semester Examinations
Operating Systems

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 sections. Answer any one full question from each section. Each question carries 10 marks and may have a, b, c as sub questions.

MODEL PAPER - 3

PART-A

1. (a) Compare the single program and Multiprogramming OS structure. [2M]

(b) Briefly explain system programs. [3M]

(c) Differentiate Process & Program? [2M]

(d) Briefly explain real time scheduling. [3M]

(e) What do you mean virtual memory? [2M]

(f) Briefly explain the structure of page table. [3M]

(g) Briefly explain free space management. [2M]

h) Differentiate Relative access & Sequential access? [3M]

(i) Explain Resource allocation graph? [2M]

(j) Briefly Explain access control. [3M]

PART-B

2. Explain Computer system architecture & OS structure with neat diagrams. [10M]

(OR)

3. Describe in detail about the design goals of the Operating systems

4. (a) Explain Process states with a neat diagram? [10M]

(b) Differentiate Preemption & Non- Preemption with an example?

(OR)

5. Explain Scheduler? Consider the following set of processes, with the arrival times and the CPU burst times given in milliseconds.

Process	Arrival-Time	Burst-Time
P1	0	5
P2	1	3
P3	2	3
P4	4	1

What is the average turnaround time and average waiting time for these processes with the preemptive shortest remaining processing time first (SRTF) algorithm?

6. Write short notes on the following [10M]

(a) Swapping, contiguous memory allocation and segmentation.

(b) Logical address & Physical address.

(c) Demand paging & thrashing.

(OR)

7. (a) Explain paging concept with neat diagram.

(b) Write short notes on allocation of frames.

8. (a) Discuss the criteria for choosing a file organization. [10M]

(b) Describe indexed file, indexed sequential file organization.

(OR)

9. Discuss C-Scan and Scan disk scheduling algorithms?

10. Write the resource allocation algorithm for Deadlock detection. [10M]

(OR)

11. (a) Explain a) Capability based systems.

b) Language – based protection.

.

Code No: XXXXX

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
B. Tech III Year I Semester Examinations
Operating Systems

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 sections. Answer any one full question from each section. Each question carries 10 marks and may have a, b, c as sub questions.

MODEL PAPER-4

PART-A

1. (a) Discuss about serial processing. [2M]

(b) Explain System call with an example. [3M]

(c) What is context switch? [2M]

(d) Explain readers writers problem ? [3M]

(e) What is demand paging? [2M]

(f) Briefly explain segmentation with paging. [3M]

(g)Briefly explain sequential file access. [2M]

(h) What are the operations on the directories? [3M]

(i) What is deadlock? [2M]

(j) Briefly explain safety algorithm. [3M]

PART-B

2. Explain OS Structure with neat diagrams [10M]

(OR)

3. (a) Explain different types of System Calls.

(b) Explain about OS Operations.

4. What is Process Control Block? Explain its structure. [10M]

(OR)

5. (a) Most round-robin schedules uses a fixed size quantum. Give an argument in favor of a small quantum. Now give an argument in favor of a large quantum. Compare and contrast the types of systems and jobs to which the argument apply.

(b) With an example explain shortest- Process- Next scheduling.

6. Explain different Page Table structures. [10M]

(OR)

7. (a) Discuss LRU-Approximation page Replacement.

(b) Consider LRU, FIFO, Optimal page replacement algorithms. Rank these algorithms from bad to perfect according to their page fault rate. Separate those algorithms which suffer from Belady‟s anomaly from those which do not.

8. (a) Explain File System Structure [10M]

(b) Write short notes on file Allocation methods

(OR)

9. Discuss C-Scan and Scan disk scheduling algorithms?

10. Explain in detail about the Bankers algorithm [10M]

(OR)

11. (a) Explain implementation of access matrix.

(b) Explain Revocation of Access matrix.

Code No: XXXXX

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
B. Tech III Year I Semester Examinations
Operating Systems

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 sections. Answer any one full question from each section. Each question carries 10 marks and may have a, b, c as sub questions.

MODEL PAPER- 5

PART-A

1.a)What are the four components of a computer system? [2M]
b) How does a clustered system differ from a multicore system? [3M]
c) What is a job queue? [2M]
d) Briefly explain load balancing. [3M]
e) What is swapping? [2M]
f) Briefly explain contiguous allocation. [3M]
g) What are the operations on directories? [2M]
h) Briefly explain indexed sequential file access method. [3M]
i) Briefly explain compiler based enforcement? [2M]
j) What is the only reasonable condition that can be used to prevent deadlocks from occurring? [3M]

PART-B

2) Explain a)OS functions b)virtual machines. [10M]

(OR)

3)Discuss in detail about the evolution of the Operating System

4) Write the short notes on the following [10M]
(a) Monitors (b) Classic problem of synchronization

(OR)

5)Explain about different CPU Scheduling methods

6)What is paging. Describe the concept of Segmentation. [10M]

(OR)

7)Explain the difference between Logical and physical address space.

8) Discuss about N- step- SCAN policy for disk scheduling. [10M]

(OR)

9) Give an example of an application that could benefit from operating system support for random access to indexed files.

10) Write the resource allocation algorithm for Deadlock detection. [10M]

(OR)

11) Explain a)Goals of protection b) Domain of protection

Code No: XXXXX

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY
B. Tech III Year I Semester Examinations
Operating Systems

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 sections. Answer any one full question from each section. Each question carries 10 marks and may have a, b, c as sub questions.

MODEL PAPER-6

PART-A

1a) State the differences between monolithic and microkernel? [2M]
b) Provide any two advantages of multiprocessor systems. [3M]
c) Enumerate at least two activities the operating system is responsible for in connection with process management. [2M]
d) Briefly explain process states. [3M]
e) What is thrashing? [2M]
f) Briefly explain structure of page table. [3M]
g) What do you mean bad blocks? [2M]
h) Briefly explain tree structured directory. [3M]
i) Briefly explain capability based systems. [2M]
j) Provide at least one method for recovering from deadlock. [3M]

PART-B

2) Explain the different types System calls with suitable examples [10M]

(OR)

3) Explain about various types of operating systems.

4) (a) What is the need for mutual exclusion? [10M]
(b) What is a critical resource?
(c) What is a critical section?
(d) What is starvation?

(OR)

5) Most round-robin schedules uses a fixed size quantum. Give an argument in favor of a small quantum. Now give an argument in favor of a large quantum. Compare and contrast the types of systems and jobs to which the argument apply.

6) Discuss LRU-Approximation page Replacement. [10M]

(OR)

7) Explain the concept of virtual memory and Demand Paging.

8) Describe indexed file, indexed sequential file organization. [10M]

(OR)

9) Explain about Disk Scheduling

10) Explain about any Deadlock detection algorithm [10M]

(OR)

11) What are the principles of protection? Discuss in detail about the Language based protection

R13

Code No: 115EH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, November/December - 2016
OPERATING SYSTEMS
(Common to CSE, IT)

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) Distinguish between symmetric and asymmetric multi processor systems. [2]
b) Define the essential properties of Interactive operating systems and Network operating systems. [3]
c) What is a dispatcher process? Explain its role. [2]
d) Describe the differences between preemptive scheduler and non-preemptive scheduler. [3]
e) What is the need of dynamic loading and dynamic linking? [2]
f) Explain the differences between internal fragmentation and external fragmentation. [3]
g) Define mounting. What is the need for mounting in a file system? [2]
h) What are the typical operations that can be performed on directory? [3]
i) What is deadlock? What is starvation? How do they differ from each other? [2]
j) What are the various methods for protection and access control? [3]

PART - B

(50 Marks)

2.a) Explain briefly about virtual machines and micro Kernels.
b) Define operating system goals from user's view and system's view. [5+5]

OR

3. What are the major activities of an operating system with regard to file management? Explain them briefly with their supporting system calls. [10]

4. Following is the snapshot of a CPU

Process	CPU Burst	Arrival Time
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. [10]

OR

5. What is a monitor? Explain how dinning philosopher's problem is solved using monitors with example pseudo code. [10]

6. Explain the common techniques for structuring the page table. [10]

OR

7.a) Consider a swapping system in which memory consists of the following hole sizes in memory order: 10 KB, 4 KB, 20 KB, 18 KB, 7 KB, 9 KB, 12 KB, and 15 KB. Which hole is taken for successive segment requests of: (i) 12 KB (ii) 10 KB (iii) 9 KB for first fit, best fit, worst fit, and next fit approaches.

b) Explain briefly about LFU Page replacement algorithm. [5+5]

8. Explain the following with relevant diagrams:
   a) Two level directory structure.
   b) Acyclic-graph directory structure. [5+5]

OR

9.a) Explain any two methods used to protect user files with examples.

b) Discuss the log structured file system implementation. [5+5]

10. Consider the following snapshot of a system:

Processes	Allocation	Max	Available
	A B CD	A B CD	A B C D
P0	0 0 1 2	0 0 1 2	2 1 0 0
P1	2 0 0 0	2 7 5 0	
P2	0 0 3 4	6 6 5 6	
P3	2 3 4 5	4 3 5 6	
P4	0 3 3 2	0 6 5 2	

Answer the following questions using the banker's algorithm:

a) What is the content of the matrix Need?

b) Is the system in a safe state? Why?

c) Is the system currently deadlocked? Why or why not?

d) Which process, if any, or may become deadlocked if this whole request is granted immediately? [2+3+2+3]

OR

11. In the capability-based system, describe the techniques, which can be used to protect the capabilities from unauthorized modification. [10]

---ooOoo---

Code No: 115EH **R13**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, March - 2017
OPERATING SYSTEMS
(Common to CSE, IT)

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) Define system call. [2]
b) Differentiate between multi programming and multi processing. [3]
c) What is critical section problem? [2]
d) How are processes managed in LINUX? [3]
e) Differentiate between logical virtual and physical address. [2]
f) Explain directory structure. [3]
g) Give different RAID levels. [2]
h) Discuss about swap space management. [3]
i) Differentiate between unsafe state and dead lock state. [2]
j) How access rights are revoked? [3]

PART - B

(50 Marks)

2.a) Briefly explain typical functions of an Operating-System Kernel.
b) What resources are used when a thread is created? How do they differ from those used when a process is created?

OR

[5+5]

3.a) What are the different types of operating systems? Explain them in detail.
b) What are the main characteristics of Real Time Operating System? [5+5]

4. Discuss readers/writers problem and give solution by using semaphores where readers have priority.

OR

[10]

5. Construct the Gantt chart for a) Shortest job first b) Round Robin with q=3 c) Round robin with q=4 d) shortest remaining time first scheduling algorithms for the following.

[10]

Process	P1	P2	P3	P4	P5
Arrival time	0	0	2	1	3
CPU Burst Time (in ms)	10	6	12	8	5

6. Explain how protection can be ensured using paging? [10]

OR

7.a) A process refers to 5 pages, A, B, C, D, and E in the order- A; B; C; D; A; B; E; A; B; C; D; E. If the page replacement algorithm is LRU, calculate the number of page faults with empty frames of size 4?
b) Explain the terms in Memory Partitioning with examples:
i) Fixed Partitioning ii) Dynamic partitioning. [5+5]

8. Suppose the head of a moving head disk with 200 tracks, numbered 0 to 199, is currently serving a request at track 143 and has just finished a request at track 125.If the queue of requests is kept in FIFO order: 86, 147, 91, 177, 94, 150, 102, 175,130. What is the total head movement to satisfy these requests for the following disk scheduling algorithms?
(a) FCFS (b) SCAN (c) SSTF (d) C- SCAN [10]

OR

9.a) What is a Directory? Write short note on Directory implementation.
b) Explain about linked allocation method of a file. [5+5]

10. 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. [10]

OR

11.a) Explain about capability based systems.
b) Discuss about revocation of access rights. [5+5]

---ooOoo---

R15A0520
WEB TECHNOLOGIES

MOST IMPORTANT QUESTIONS (GUNSHOT QUESTIONS):

1. What is CSS? Explain different types of CSS with examples.

2. Explain the following terms related to Web:

i) Internet ii) WWW iii) Web Browsers iv) URL v) HTTP

3. Explain the following terms related to HTML:

i) image ii) List iii)Table iv) Frames v) Font vi) Physical tags

4. Explain features of Java Script? Illustrate popup windows with event handlers in JavaScript.

5. Define Parser. List out the differences between DOM and SAX parsers?

6. What is DTD? Explain types of DTD with example.

7. What are the differences between Get and Post methods in form submitting?

8. Create an HTML form which contains username, password, gender, address and a submit button. Write a PHP script to handle this form.

9. Define Servlet. Explain the life cycle methods of a Servlet and Write a program by using Servlet.

10. Explain Reading and Initialization parameters using Servlet with example?

11. Explain Anatomy of a JSP page.

12. What are the elements of a JSP page? Write short notes about each element with an example.

13. Define JDBC. Explain JDBC Drivers with a neat diagram.

14. Explain Accessing a Database from a Servlet with example.

15. Display current date using PHP, Servlet and JSP.

16. Explain Session tracking techniques with example.

IMPORTANT QUESTIONS:

UNIT – I:

1. Explain the following terms related to Web:

i) Internet ii) WWW iii) Web Browsers iv) URL v) MIME vi) HTTP

2. Define HTML? Explain Html common tags with suitable examples?

3. What is CSS? Explain different types of CSS with examples.

4. Explain features of Java Script? Illustrate popup windows with event handlers in JavaScript.

5. Create an HTML form which contains username, password, gender, address and a submit button. Write a PHP script to handle this form.

UNIT – II:

1. a) Explain the differences between HTML and XHTML with examples.

b) What is DTD? Explain types of DTD with example.

2. Explain XML Schema with an example.

3. Define Parser. List out the differences between DOM and SAX parsers?

4. a) What is PHP? Explain parameter passing techniques and dynamic function using PHP.

b) What are the differences between Get and Post methods in form submitting?

5. What are the differences between cookies and sessions in PHP?

UNIT -III

1. Explain Reading and Initialization parameters using Servlet with example?

2. What is cookie? Explain handling cookies in Servlet with example.

3. Define Servlet. Explain the life cycle methods of a Servlet and Write a program by using Servlet.

UNIT -IV

1. A) List out the implicit objects in JSP. Explain about each?

B) Describe in detail about the processing of a JSP page.

2. A) Explain Anatomy of a JSP page.

B) What are the problems with Servlet over JSP?

3. A) what are the elements of a JSP page? Write short notes about each element with an example.

B) What are the attributes of PAGE directive?

4. Explain Session tracking techniques in JSP.

UNIT -V

1. Define JDBC. Explain JDBC Drivers with a neat diagram.

2. Explain Accessing a Database from a Servlet with example.

3. What is a Java Bean? Explain Deploying java beans in a JSP page with example.

4. A) Explain Connecting to database in PHP.

B) Write a PHP program for Create table and Inserting values into that table using database?

UNITWISE IMPORTANT QUESTIONS:

S. No.	Questions
	UNIT - I
1	**Explain** the following terms related to Web: **i)** Internet **ii)** WWW **iii)** Web Browsers **iv)** URL **v)** HTTP
2	**Explain** the following terms related to HTML: **i)** image **ii)** List **iii)**Table **iv)** Frames **v)** Font **vi)** Physical tags
3	**Explain** web programmers Tool Box.
4	**List** out MIME Types?
5	**Design** an application **form** of name, password, age, mobile no, email-id, address, reset and submit button using HTML.
6	**Define** CSS. **Explain** types of CSS with example.
7	**Explain** the need for scripting languages in web programming. **Explain** how to embed JavaScript code in an HTML document.
8	**What** is JavaScript? Write the features of JavaScript? **How** can we get the current time using date function?
9	**Explain** features of Java Script? Illustrate popup windows with event handlers in JavaScript.
10	**Explain** the various control statements available with JavaScript.
11	**What** is an event? How can we handle events in JavaScript?

12	**What** is form validation? Explain with example?
	UNIT – II
1	**What** is PHP? **Explain** about various data types and Arrays in PHP.
2	**What** are the differences between Get and post methods in form submitting. Give the case where we can use get and we can use post methods?
3	**Define** function. Explain dynamic function call in PHP. **How** can we get the current time using date function?
4	**What** are the differences between PHP and JavaScript & XML and HTML?
5	**What** is a cookie? How to handle cookies in PHP?
6	**Define** session. Explain handling sessions in PHP.
7	**Create** an HTML form which contains username, password, gender, address and a submit button. Write a PHP script to handle this form.
8	**Define** XML? What are the advantages of xml? **List** the XML syntax rules in detail.
9	**Define** an xml scheme show how an XML Scheme can be created? **List** out the advantages of schema over DTD?
10	**Explain** a brief note on XML parsers. **Distinguish** between SAX AND DOM?
11	**How** do you define the elements and attributes of an XML document in an XML Schema?
12	**Define** DTD. **List** out the types of Document Type declaration?
	UNIT – III
1	**List** out difference between web server and application server?
2	**Discuss** the web application and what is its directory structure (deployment of Servlet)?
3	**Explain** about Servlet? Explain types of Servlet.

4	**List** out various phases of Servlet life cycle with a neat diagram and example?
5	**Explain** how to override service () method?
6	**Explain** Reading and Initialization parameters using Servlet with example?
7	**List** the methods defined in HttpServletRequest?
8	**Write** a Servlet program to read data from an application form using Request? Or **Explain** how HTTP POST **request** is processed using Servlets
9	**Explain** how cookies are used in Servlets?
10	**What** is session tracking? **Explain** different mechanisms of session tracking? Or **Define** a session tracker that tracks the number of accesses and last access data of a particular web page.
11	**Explain** about Tomcat web server.
12	**What** is the difference between Servlets and applets?
UNIT – IV	
1	**Explain** briefly about the Problem with Servlet over JSP.
2	**List the** different Scripting tags and Action tags used in JSP.
3	**Explain** about JSP Elements?
4	**Explain** JSP processing with a neat diagram.
5	**Explain** about various implicit objects?
6	**Explain** attributes of **PAGE** directive.
7	**How** application data can be shared in JSP. Explain.

8	**List** the methods in request object.
9	**Explain** the categories of JSP tags - Directives, Scripting elements, Actions.
10	**List** out differences between including action and include directive in JSP?
11	**Describe** the Anatomy of JSP Page
12	**Explain** about the JSP Directive Elements? Explain each one of them in detail?
UNIT – V	
1	**Define** JDBC. Explain JDBC Drivers with a neat diagram.
2	What is a Java Bean? Explain Deploying java beans in a JSP page with example.
3	**List** the statements that are used to connect PHP with MySQL.
4	**How** can I retrieve values from one database server and store them in other database server using PHP?
5	**Explain** about the usage of JavaBean Component in JSP.
6	**Explain** javax.sql.* package.
7	**List** the statements that are used to connect SERVLET with JDBC.
8	**Explain** Accessing a Database from a Servlet with example.
9	**List** the statements that are used to connect JSP with JDBC.
10	**Explain** Accessing a Database from a JSP with example.
11	**Write** a PHP program for Create table and Inserting values into that table?
12	**Write** a PHP program for update and alter the data into that table?

R15A0512
COMPILER DESIGN

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

B.Tech III Year I Semester Examinations

COMPILER DESIGN (R15A0512)

Time : 3.00 Hours **MODEL PAPER -1** **Max.Marks: 75**

PART-A (25 Marks)

1 a) Define the terms Language Translator and compiler. [2M]

b) Write Regular Expression for specifying Identifiers and Constants of C [3M]

c) What is an ambiguous grammar? Give example. [2M]

d) Define left recursion. Is the following grammar left recursive? E → E+E | E*E| a| b [3M]

e) What is hashing? Explain. [2M]

f) Find the type expression for the statements: int a,b,sum a= func(10,20); [3M]

g) What is code optimization? Give example for any two optimization techniques [2M]

h) What is a flow graph? Explain with an example. [3M]

i) List out different object code forms. [2M]

j) Differentiate Abstract Syntax Tree and DAG representations of intermediate code. [3M]

PART-B (5x10 = 50 Marks)

2. Discuss the phases of a compiler indicating the inputs and outputs of each phase in translating the statement "amount = principle + rate * 36.0 " [10M]

OR

3. Define an LL(1) grammar. Is the following grammar LL(1). G:S → iEtS | iEtSes |a , E → b. Also write the rules for computing FIRST() and FOLLOW(). [10M]

4. What is an LALR(1) grammar?. Construct LALR parsing table for the following grammar:

S→ CC, C → cC , C → c|d . [10 M]

OR

5. Explain the usage of YACC parser generator in construction of a Parser. [10 M]

6. What are different intermediate code forms? Discuss different Three Address code types and implementations of Three Address statements. [10 M]

OR

7. With a neat diagram explain the format of the Symbol Table. And discuss the tree structures representation of scope information. [10 M]

8. Explain the following code optimization techniques with examples. [10 M]

a) Constant propagation b) Strength reduction c) Code Motion

9. a) What is an induction variable? Explain with an example. [10 M]

b) Discuss how induction variables can be detected and eliminated from the given [10M]

intermediate code

```
B2:   i:= i+1
      t1:=4*j
      t2:=a[t1]
      if t2<10 goto B2
```

10.Explain various issues in the design of the code generation. [10M]

OR

11.a). Explain the code generation algorithm in detail. [10M]

b). Write short notes on peephole optimization.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

B.Tech III Year I Semester Examinations

COMPILER DESIGN (R15A0512)

Time : 3.00 Hours **MODEL PAPER -2** **Max.Marks: 75**

PART-A (25 Marks)

1 a) What is a compiler? List different types of Compiler [2M]

b) Specify the functionality of linker, loader, and compiler [3M]

c) List down the conflicts during shift-reduce parsing [2M]

d) Explain about handle pruning? [3M]

e) List the three kinds of intermediate representation [2M]

f) Explain postfix notation [3M]

g) Define Peephole Optimization [2M]

h) Differentiate constant propagation and variable propagation [3M]

i) What is meant by Dead code Elimination. [2M]

j) Specify the various object code forms [3M]

PART-B (5x10 = 50 Marks)

2. List out the functions of a Lexical Analyzer? State the reasons for the Separation of Analyses programs into Lexical, Syntax, and Semantic Analyses. [10 M]

OR

3. Define a Parser. What is the role of grammars in Parser construction? Construct the Predictive parsing table for the grammar G : E → E+T |T , E →T*F |F , F →(E) |id. [10M]

4. What is an LR(0) item? Construct an SLR parsing table for the grammar G: S→ L=R |R, L → *R | id, R → L. Is it SLR(1) grammar? [10 M]

OR

5. Construct SLR parsing table for the following grammar: R-> R'|'R|RR|R*|(R)|al b [10 M]
6. What do you mean by attributed grammars? Discuss the a translation scheme for Converting an infix expression to its equivalent postfix form. [10 M]

OR

7. Define activation records. Explain how it is related with runtime storage allocation. [10 M]
8. What is the role of code Optimizer in compiler? Is it a mandatory phase? [10 M]
9. What is DAG and flow graph? Explain their role in compilation process. [10 M]

10.a) Explain why next-use information is required for generating object code? [5M]

b) Explain the main issues in code generation. [5M]

OR

11. Generate code for the following C program using any code generation algorithm. [10 M]

```
main()
{
Int I;
Int a[10];
while(i<=10)
a[i]=0;
}
```

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

B.Tech III Year I Semester Examinations

COMPILER DESIGN (R15A0512)

Time : 3.00 Hours **MODEL PAPER -3** **Max.Marks: 75**

PART-A (25 Marks)

1 a) What is an interpreter? Give two languages that are interpreted. [2M]

b) Write short notes on bootstrapping. [3M]

c) List out the kind of errors handled by the Scanner. [2M]

d) What is do you mean by left factoring the grammars? Explain. [3M]

e) What is a handle in bottom up parsing? Explain. [2M]

f) Convert the expression a= b*-c + b*-c into Three Address statements? [3M]

g) Define common sub expressions? [2M]

h) Explain inner loops [3M]

i) Specify the properties of Object code generation [2M]

j) Compute the cost of following code sequence: MOV B,A ADD C,A [3M]

PART-B (5x10 = 50 Marks)

2. What is LEX? Discuss the usage of LEX in Lexical Analyzer generation. [10 M]

OR

3. a) Write a note on the parse generator '_ YACC.

b) Write the YACC specification of a simple desk calculator as given: [10M]
E->E+T/T T->T*F /F F -> (E) | digit where digit between 0 to 9.

4. a) Obtain the directed acycJic graph for the expression : x+x*(y+ z)+(y+z)* w [10 M]

b) Explain the following with example: i) Quadqaples ii) Triples iii) Indirect triple

OR

5. Compare and contrast SLR with LALR. Define Kernel items and Non-kernel items. [10 M]

Show the following grammar is LALR(1)

S-> Aa | bAc | dc | bda

A-> d

6. Generate the three address code for the following code fragment. [10 M]

```
a = b + 1                x = y +
3      y = a / b         a = b +
c
```

OR

7. Write a note on simple type checker and list the different types of type checking [10 M]

8. What is the role of code Optimizer in compiler? Is it a mandatory phase? [10 M]

OR

9. a) Construct a DAG for the expression: a+a*(b-c)+(b-c)*d [10 M]

b) Explain various machine independent code optimization techniques.

10. a) Discuss Global Register Allocation in code generation. [10 M]

b) Generate code for the following C statements: i) x=f(a)+f(a) ii) y=x/5;.

OR

11. Consider the following basic block of 3-address instructions: [10 M]

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

Write the next-use information for each line of the basic block.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

B.Tech III Year I Semester Examinations

COMPILER DESIGN (R15A0512)

Time : 3.00 Hours **MODEL PAPER -4** **Max.Marks: 75**

PART-A (25 Marks)

1 a) State some compiler construction tools. [2M]

b) Differentiate pass and phase. [3M]

c) What is LR(k) parsing? [2M]

d) Describe the types of LR parsers. [3M]

e) State the three kinds of intermediate representation [2M]

f) List the different types of type checking. [3M]

g) What is meant by strength reduction. [2M]

h) Specify the applications of DAG [3M]

i) Explain the role of code generator in a compiler [2M]

j) How to calculate the cost of an instruction. [3M]

PART-B (5x10 = 50 Marks)

2. What is LEX? Discuss the usage of LEX in Lexical Analyzer generation. [10 M]

OR

3. State the various phases of a compiler and explain them in detail. [10M]

4. Prepare a canonical parsing table for the given grammar: [10 M]

S-> CC

C-> cC / d

OR

5. Compare and contrast SLR with LALR. Define Kernel items and Non-kernel items. [10M]

Show the following grammar is LALR(1)

S-> Aa | bAc | dc | bda

A-> d

6. Generate the three address code for the following code fragment. [10 M]

while(a>b)

{

if(c<d)

x=y+z;

else

x=y-z;

}

OR

7. Explain the use of symbol table in compilation process. List out the various attributes for implementing the symbol table. [10 M]

8. Explain the different storage allocation strategies. [10 M]

OR

9. Explain the role of DAG in optimization with example. [10 M]

10. Generate code for the following: i) x=f(a)+f(a)+f(a) ii) x=f(f(a)) iii) x=++f(a) iv) x=f(a)/g(b,c) [10 M]

OR

11. Explain the following terms: i) Register Descriptor ii) Address Descriptor iii) Instruction Costs [10 M]

Code No: 115AP

R13

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, November - 2015
COMPILER DESIGN
(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A (25 Marks)

1.a) Define Cross Compiler. [2]

b) Eliminate immediate left recursion for the following grammar:
E->E+T | T
T->T* F | F
F-> (E) | id [3]

c) List the rules for computing FOLLOW SET. [2]

d) Define CLOSURE (I). [3]

e) What is a symbol table? [2]

f) What does a semantic analysis do? [3]

g) Define basic block in a flow graph. [2]

h) What is a DAG? Mention its applications [3]

i) Generate a object code for following statements
a = b + c; d = a+e [2]

j) Mention the properties that a code generator should possess. [3]

PART - B (50 Marks)

2. What are the various phases of the compiler? Explain each phase in detail. [10]

OR

3. Construct the predictive parser for the following grammar: [10]
S->(L)/a
L->L,S/S

4. Find the SLR parsing table for the given grammar:
E->E+E | E*E | (E) | id.
And parse the sentence (a+b)*c. [10]

OR

5. Construct an LALR Parsing table for the following grammar: [10]
E-> E+T |T
T-> T*F|F
F->id

6. Generate intermediate code for the following code segment along with the required syntax directed translation scheme:

```
if(a>b)
x=a+b
else
x=a-b
```

Where a and x are of real and b of int type data. [10]

OR

7. Give syntax directed translation scheme for simple desk circulator. [10]

8. Explain the following with an example:
   a) Redundant sub expression elimination
   b) Frequency reduction
   c) Copy propagation. [3+3+4]

OR

9. Optimize the following code using various optimization techniques: [10]

```
i=1; s=0;
for (i=1; i<=3; i++)
for (j=1;j<=3;j++)
c[i][j]=c[i][j] + a[i][j] + b[i][j]
```

10. Explain in detail about machine dependent code optimization techniques. [10]

OR

11. Give an example to show how DAG is used for register allocation. [10]

---ooOoo---

R13

Code No: 115AP

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, November/December - 2016

COMPILER DESIGN

(Computer Science and Engineering)

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) Write a brief note on bootstrap process. [2]
b) What are the differences between a compiler and an interpreter? [3]
c) Give the specification of the YACC parser generator. [2]
d) Construct the LR(0) items for the "dangling-else" grammar. [3]
e) How to check structural equivalence of two type expressions? [2]
f) Define and write the differences between synthesized attributes and inherited attributes. [3]
g) Write a short note on Flow graph. [2]
h) Write an algorithm for constructing a basic block. [3]
i) Define various possible outputs of the code generator. [2]
j) Construct DAG for the following basic block: [3]

T1=A+B
T2=C+D
T3=E – T2
T4=T1– T3

PART - B

(50 Marks)

2.a) Explain various error recovery strategies in lexical analysis.
b) Construct a Finite Automata and Scanning algorithm for recognizing identifiers, numerical constants in C language. [5+5]

OR

3. Explain the various phases of a compiler with an illustrative example. [10]

4. Construct the LR Parsing table for the following grammar: [10]

E→E + T | T
T→T * F | F
F → (E)/id

OR

5.a) Write a YACC program that will take regular expression as input and produce its parse tree as output.
b) Write an algorithm for computing LR(k) item sets. [5+5]

6.a) Write an SDT to convert infix to postfix expression.

b) Explain briefly about polymorphic functions. [5+5]

OR

7. Explain various storage allocation strategies with its merits and demerits. [10]

8. Discuss various techniques of function preserving transformations for code optimization. [10]

OR

9. Explain how data flow equations are set up and solved for improving code. [10]

10. Explain the following peephole optimization techniques: [5+5]
    a) Elimination of Redundant Code
    b) Elimination of Unreachable Code.

OR

11. Explain in detail about machine dependent code optimization techniques with their drawbacks. [10]

---ooOoo---

R15A0524
DISTRIBUTED SYSTEMS

DISTRIBUTED SYSTEMS – QUESTION BANK

PART – A (SHORT ANSWER QUESTIONS)

	UNIT – I
1	Define distributed system?
2	Define the properties of the distributed system?
3	Define effective resource sharing?
4	List the examples of the distributed systems?
5	State the challenges of the distributed systems?
6	Define distributed client and distributed server?
7	Give some reasons why centralized systems are not adequate to modern computing?
8	Compute architectural and fundamental models?
9	Define interaction model?
10	Describe failure model?
11	Explain transparency and its types?
12	Define synchronous and asynchronous distributed systems?
13	Define omission failure?
14	Define arbitrary failure?
15	Define masking failure?
16	Describe how failure handling in distributed system?
17	What is meant by byzantine failure?
18	Define types of failures?
19	List the design requirements for distributed architectures?
20	List the services provided by multiple servers, proxy servers, peer processes?
	UNIT – II
1	Describe lamport logical clock?
2	Describe events and process states?
3	Define physical clock?
4	Define logical time?
5	Define logical clocks?
6	Differentiate between election algorithm and mutual exclusion algorithms?
7	Describe the network time protocol?
8	Explain distributed garbage collection?
9	Define vector clocks?
10	Define global states?
11	Explain distributed deadlock detection?
12	Explain distributed termination detection?
13	Define consistent cut?
14	Define inconsistent cut?
15	Demonstrate snapshot algorithm?
16	Define the termination of the snapshot algorithm?
17	Define distributed debugging?
18	List consistent global states?

19	Define bully algorithm?
20	Define the definition of the critical section?
	UNIT – III
1	Define the uses of UDP?
2	Explain TCP Stream communication?
3	List the issues related to the stream communication?
4	Define data marshalling?
5	Define data representation?
6	Define CORBA?
7	Explain request-reply protocols?
8	Demonstrate IP multicast?
9	Define some examples of the effects of reliability and ordering?
10	Explain data gram communication in UNIX?
11	Define types of network?
12	Define network principles?
13	Define internet protocols?
14	State client-server communication?
15	Define group communication?
16	Define RMI?
17	Define RPC?
18	Define socket?
19	List the differences between TCP and UDP?
20	Distinguish synchronous and asynchronous communication?
	UNIT – IV
1	State distributed file system requirements?
2	Write the types of the transparency?
3	List the differences between global name service and x.500 directory service?
4	Define consistency and efficiency?
5	Differentiate between Andrew file system and sun network file system?
6	Define client integration in the SUN network file system?
7	Define virtual file system?
8	Define mount service?
9	Explain cache consistency in Andrew file system?
10	Explain other aspects in the Andrew file system?
11	Define the definition of the domain name service?
12	Define directory?
13	Define global name service?
14	Demonstrate the importance of the name services in the distributed system?
15	Define name resolution?
16	Explain name service requirements?
17	Define name space?
18	Explain the aliasing concept?
19	Explain name resolution?

	Explain nested transactions?
	Define how the transactions are executed?
	Define deadlock?
	Define atomic commit protocols?
	Define distributed deadlock?
	Explain concurrency control in distributed transactions?
	Define nested transactions?
	Explain deadlock detection?
	Explain deadlock recovery?
	Define wait-for-graph?
	Define phantom deadlocks?
	Explain recovery of nested transactions?
	List the directory services?
	UNIT – V
1	Define transaction recovery?
2	Compare the flat and nested distributed transactions?
3	Define the properties of transactions?
4	Define the types of locks?
5	Define 2PL?
6	Define shrinking and growing phase?
7	Define time stamp ordering?
8	List the methods of the concurrency control?

PART – B (ESSAY QUESTIONS)

	UNIT - I
1	Discuss the challenges of the distributed systems with their examples?
2	Differentiate between centralized systems and the distributed systems with a suitable example?
3	Discuss the applications of the distributed systems?
4	Explain resource sharing in the distributed systems?
5	Explain world wide web in a detail manner?
6	Illustrate with an example how resources are shared in the distributed systems and explain how it is not possible in the centralized systems?
7	Describe features of the distributed systems and also examples of the distributed systems?
8	Discuss how distributed systems are more scalable than the centralized systems?
9	Explain failure handling and transparency?
10	Describe the definition of the distributed systems and effective resource sharing and explain them clearly?
	UNIT – II
1	Explain clocks, events and process states?
2	Explain how synchronizing physical clocks?
3	Discuss the lamport logical clocks and logical time?
4	Describe distribute debugging?

5	Explain global states in detail?
6	Explain the snapshot algorithm of chandy and lamport ?
7	Differentiate all the type of the multicast communication?
8	Discuss the termination procedure of the snapshot algorithm with an example?
9	Explain how consistent global states are observing in distributed debugging process.
10	Evaluate possibly ~~o~~ and evaluating definitely ~~o~~ in distributed debugging process?

UNIT - III

1	Explain the API for the internet protocols in IPC?
2	Explain UDP datagram communication in detail?
3	Explain TCP stream communication in detail?
4	Explain in detail about external data and marshalling?
5	Explain client-server communication in detail?
6	Explain group communication in detail?
7	Explain IP multicast in group communication?
8	Explain reliability and ordering of multicast in group communication?
9	Explain the two alternative approaches in the data representation and marshalling?
10	Describe the inter process communication in Unix with an example?

UNIT – IV

1	Explain file service architecture in detail?
2	Explain sun network file system?
3	Describe in detail about Andrew file system?
4	Write about the recent advances in the distributed file systems?
5	Explain the characteristics and distributed file system requirements?
6	Describe basic distributed file system and storage systems and their properties?
7	Explain distributed file system with any two examples?
8	Differentiate sun network file systems and Andrew file systems?
9	Explain the implementation of the Andrew file systems?
10	Explain NFS architecture of the sun network file systems?
11	Explain name services and the domain name systems?
12	Explain directory and discovery services?
13	Discuss about global name service in detail?
14	Describe the X.500 directory service in detail?
15	Demonstrate the domain name system?
16	Explain the design and implementation issues of distributed shared memory?
17	Explain sequential consistency and Ivy in detail?
18	Explain release consistency with an example?
19	Discuss in detail about Munin?
20	Write a note on all consistency models?

UNIT – V

5	Explain about deadlocks in detail?
6	Differentiate the methods for concurrency control?
7	Explain about optimistic concurrency control?
8	Explain about time stamp ordering?
9	Explain flat and nested transactions with a neat sketch?
10	Explain atomic commit protocols?
1	State and explain simple synchronization and failure model for transactions?
2	Explain transactions and their properties in detail?
3	Write a brief note on nested transactions?
4	Write a brief note on locks and its types?
5.	Explain about concurrency control
6.	Write about distributed deadlocks.
7	How is recovery of transactions achieved in a distributed system?

PART – C (PROBLEM SOLVING AND CRITICAL THINKING QUESTIONS)

1	Describe the types of the system models and their types in a detail manner?
2	Explain why architecture model is important for distributed systems?
3	Explain fundamental model in detail?
4	Explain system architectures in distributed systems?
5	Demonstrate the design requirements for distributed architectures?
6	Describe all the types of the fundamental models?
7	Differentiate interaction model, security model, failure model?
8	Illustrate the client-server architecture of one or more major internet applications?
9	Explain the types of the failures that may normally happen in distributed systems?
10	Explain how events are ordering in real-time with neat sketch?
11	Explain Network Time Protocol in detail?
12	Differentiate failure assumptions and failure detectors?
13	Explain distributed mutual exclusion in detail?
14	Discuss in detail about the algorithms of the mutual exclusion?
15	Define critical section and mutual exclusion and explain its algorithms?
16	Explain how election is done when any particular system crashes?
17	Briefly discuss the types of the election algorithms with a neat sketch?
18	Discuss in detail about the multicast communication?
19	Explain different kinds of problems that are associated with the coordination and agreement in distributed systems?
20	Discuss in detail about consensus and related problems in coordination and agreement?

S. No	Question
21	Discuss about the communication between distributed objects in RMI?
22	Explain distributed object model and also discuss the design issues of RMI?
23	Explain the implementation of the RMI and distributed garbage collection?
24	Explain RPC with a neat example?
25	Describe events and its types and explain notifications in the remote invocation?
26	Discuss about jinni distributed event specification?
27	Explain Java RMI and its procedures?
28	Explain how java RMI builds the client and server programs?
29	Describe the design implementation of java RMI?
30	Explain Sun RPC in detail?
32	Explain distributed object model and also discuss the design issues of RMI?
33	Explain the implementation of the RMI and distributed garbage collection?
34	Explain RPC with a neat example?
35	Describe events and its types and explain notifications in the remote invocation?
36	Discuss about jinni distributed event specification?
37	Explain Java RMI and its procedures?
38	Explain how java RMI builds the client and server programs?
39	Describe the design implementation of java RMI?
40	Explain Sun RPC in detail?
41	Discuss about the communication between distributed objects in RMI?
41	Explain two phase commit protocols for nested transactions?
42	Explain concurrency control in distributed transactions?
43	Write a brief note on distributed deadlocks?
44	Explain the transaction recovery procedure in distributed transactions?
45	Explain the recovery of the two- phase commit protocol in distributed transactions?
46	Explain in detail about the three- phase locking?
47	Distinguish between three phase commit and two phase commit protocol?
48	Explain with an example of the interleaving of two transactions that is serially equivalent at each server but is not serially equivalent globally?
49	Explain how the low-phase commit protocol for nested transactions ensures that if the top-level transaction commits, all the right descendants are committed or aborted?
50	Differentiate between the various locking protocols in distributed transactions.

R13

Code No: 126AP

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech III Year II Semester Examinations, May - 2016

DISTRIBUTED SYSTEMS

(Computer Science and Engineering)

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) List the services provided by multiple servers, proxy servers and peer processes. [2]
b) Define types of failures. What is meant by byzantine failure? [3]
c) Define bully algorithm. [2]
d) Define the definition of the critical section. [3]
e) List the differences between TCP and UDP. [2]
f) State client-server communication. [3]
g) Explain name resolution. [2]
h) Explain other aspects in the Andrew file system. [3]
i) Explain recovery of nested transactions. [2]
j) Define distributed deadlock? [3]

PART - B

(50 Marks)

2.a) Describe the advantages and disadvantages of the HTML, URL and HTTP as core technologies for information browsing.
b) Discuss how distributed systems are more scalable than the centralized systems. [5+5]

OR

3.a) Demonstrate the design requirements for distributed architectures.
b) Explain how events are ordering in real-time with neat sketch. [5+5]

4.a) Explain different kinds of problems that are associated with the coordination and agreement in distributed systems.
b) Explain how election is done when any particular system crashes? [5+5]

OR

5.a) Differentiate failure assumptions and failure detectors.
b) Illustrate an example execution of the ring- based algorithm to show that processes are not necessarily granted entry to the critical section in happened-before order. [5+5]

6.a) Explain RPC with a neat example.

b) Discuss about the communication between distributed objects in RMI. [5+5]

OR

7.a) Explain the implementation of the RMI and distributed garbage collection.

b) Define the interface to the election service in the CORBA IDL, and JAVA RMI. Note that CORBA IDL provides type long for 32-bit integers. Compare the methods in the two languages for specifying input and output arguments. [5+5]

8.a) Explain sequential consistency and IVY in detail.

b) Discuss in detail about Munin. [5+5]

OR

9.a) Explain directory and discovery services.

b) Explain release consistency with an example. [5+5]

10.a) Define deadlock? And explain how deadlocks are occurred and recovered in the distributed systems?

b) Explain with an example how two transactions are interleaved which are serially equivalent at each server but is not serially equivalent globally? [5+5]

OR

11.a) Distinguish all the locking protocols in distributed transactions.

b) Discuss the edge-chasing algorithm. Give examples to show that it could detect phantom deadlocks. [5+5]

---ooOoo---

Code No: 126AP

R13 & R15

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, December - 2017
DISTRIBUTED SYSTEMS
(Computer Science and Engineering)

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

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) What are the different challenges of distributed system? [2]
b) Describe about distributed multimedia systems. [3]
c) Write about Distributed debugging. [2]
d) What are the problems that are associated with the coordination and agreement in distributed systems? [3]
e) What is Inter process communication? [2]
f) What is meant by group communication? [3]
g) Define Distributed File system. [2]
h) Write about sequential consistency. [3]
i) Write rules for connecting of nested transaction. [2]
j) Write about active and passive replications. [3]

PART - B

(50 Marks)

2.a) Describe the distributed computing as utility.
b) What are the different benefits of resource sharing? Explain about its significance? [5+5]

OR

3.a) What are the different system model of distributed system?
b) Discuss how distributed systems are more scalable than the centralized systems? [5+5]

4.a) What are the features required for election algorithms.
b) Explain how election is done when any particular system crashes? [5+5]

OR

5.a) Write about bully algorithm and summarize how it is different from other election algorithms.
b) What is meant by event ordering? Explain real time ordering of events. [5+5]

6.a) What meant by marshalling? Differentiate between TCP stream communication and Client Server Communication.

b) Discuss about the communication between distributed objects in RMI. [5+5]

OR

7.a) What is meant by inter process communication? How inter process communication is used in distributed systems?

b) What are design issues for remote method invocation? [5+5]

8.a) Explain in brief about directory and discovery services.

b) Discuss the design and implementation issues of Domain Name System. [5+5]

OR

9.a) Discuss in detail about Munin.

b) List the characteristics of file systems. [5+5]

10.a) Explain with an example how two transactions are interleaved which are serially equivalent at each server but is not serially equivalent globally?

b) Explain how distributed deadlocks can be detected? [5+5]

OR

11.a) What is meant by concurrency control? How it is important in distributed systems?

b) Explain how primary-backup model of replication is fault tolerant? [5+5]

---ooOoo---

R15A0065
MANAGEMENT SCIENCE

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(Autonomous Institution – UGC, Govt. of India) UG
Model question paper Management Science 2018-19

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

Note: This question paper contains of 5 sections. Answer five questions, choosing one question from each section and each question carries 14 marks.

SECTION-I

2) a) Explain functions of management.
b) Explain about contributions of human relation period. [7 +7M]

OR

2. a) Differentiate management, organization and administration.
b)Define leadership.
c) Define scientific management. [7 +3+4M]

SECTION-II

3 a) Differentiate between organization and organizing.
b) Evaluate line and staff organization. [7+7M]

OR

4 a) Explain marketing strategies based on product life cycle.
b) Define Economic Order Quantity.
c) Define ABC analysis

[7+3+4M]

SECTION-III

5. a)What are the functions of HR manager?
b) What do you understand by grievance handling? [7 +7M]

OR

6. a)What do you understand by management by objectives? [7+7M]

b) What is link between job evaluation and wage and salary administration

SECTION-IV

7. a) What is project crashing? Explain probability of completing project within time.

b) Explain the nature of costs in a project.

OR

pollution .

[10+4M]

8 a) Explain rules of drawing networks –

b) Define PERT and CPM.

[7 +7M]

SECTION-V

9.a) Identify and discuss the stages in the process of strategy formulation and implementation.

b) Explain international environment. [10 +4M]

OR

10 a) What do you understand by SWOT analysis?

b) Explain TQM, JIT,

c) Explain ERP, BPO. [6+4+4M]

Previous question papers

MALLA REDDY COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

B.Tech III year – I Semester Examinations, Model Paper-1

MANAGEMENT SCIENCE

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

PART- A (25 Marks)

Answer all the questions **25 marks**

1. A) Define management.
   B) Explain concepts of management.
   C) Define HRD. What are the various activities in it?
   D) What is MBO? How it will be used in performance appraisal.
   E) Write about critical path.
   F) Explain rules for drawing networks.
   G) Define corporate planning process.
   H) Explain about micro environment.
   I) Explain any four features of Management.
   J) Define Process Control & Acceptance Sampling.

Section-B **5x10=50**

2. Define Management and explain the functions of Management**.**

Or

3. What is the importance of Management in the present business scenario?
4. Discuss the various Organizational Structures**.**

Or

5. Explain the Marketing Mix.

Or

6. What are the differences between PM and HRM?

Or

7. Explain the significance of manpower planning?
8. Differentiate between PERT and CPM?

Or

9. Explain the steps involved in probability of completing the project with in given time?
10. Explain the significance of environmental analysis?

Or

11. Explain the steps in Strategy formulation and implementation?