Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Implement the C Program to create a child process using fork(), display parent and child process id. Child process will display the message "I am Child Process" and the parent process should display "I am Parent Process".   **[10 marks]**

Q 2)   Write a C program that behaves like a shell which displays the command prompt '**myshell$**'. It accepts the command, tokenize the command line and execute it by creating the child process. Also implement the additional command 'list' as

myshell$ list f dirname: It will display filenames in a given directory.

myshell$ list n dirname: It will count the number of entries in a given directory.

myshell$ list i dirname: It will display filenames and their inode number for the files in a given directory.   **[20 marks]**

Q 3)   Viva   **[5 marks]**

Slip1

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Write a C program to illustrate the concept of orphan process. Parent process creates a child and terminates before child has finished its task. So child process becomes orphan process. (Use fork(), sleep(), getpid(), getppid()).   **[10 marks]**

Q 2)   Write a program to simulate FCFS CPU-scheduling. The arrival time and first CPU-burst for different n number of processes should be input to the algorithm. Assume that the fixed IO waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time.   **[20 marks]**

Q 3) Viva   **[5 marks]**

Slip2

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Implement the C program to accept n integers to be sorted. Main function creates child process using fork system call. Parent process sorts the integers using bubble sort and waits for child process using wait system call.   **[10 marks]**

Q 2)   Write a C program that behaves like a shell which displays the command prompt '**myshell$**'. It accepts the command, tokenize the command line and execute it by creating the child process. Also implement the additional command 'list' as

myshell$ list f dirname: It will display filenames in a given directory.

myshell$ list n dirname: It will count the number of entries in a given directory.

myshell$ list i dirname: It will display filenames and their inode number for the files in a given directory.   **[20 marks]**

Q 3)   Viva   **[5 marks]**

Slip3

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Implement the C program to accept n integers to be sorted. Main function creates child process using fork system call. Child process sorts the integers using bubble sort and waits for Parent process using wait system call.   **[10 marks]**

Q 2)   Write the program to simulate FCFS CPU-scheduling. The arrival time and first CPU-burst for different n number of processes should be input to the algorithm. Assume that the fixed IO waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time.   **[20 marks]**

Q 3)   Viva   **[5 marks]**

Slip4

Duration: 3 Hours   **Maximum Marks: 35**

Q 1) Implement the C program to accept n integers to be sorted. Main function creates child process using fork system call. Child process sorts the integers using bubble sort and waits for Parent process using wait system call.   **[10 marks]**

Q 2) Write the program to simulate Non-preemptive Shortest Job First (SJF) -scheduling. The arrival time and first CPU-burst for different n number of processes should be input to the algorithm. Assume the fixed IO waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time. **[20 marks]**

Q 3) Viva   **[5 marks]**

Slip5

Savitribai Phule Pune University

T.Y.B.Sc Computer Science Practical Examination Feb-2022

Semester V (2021 pattern)

Lab Course CS-357 Lab Course I (Operating System-I)

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Write the simulation program to implement demand paging and show the page scheduling and total number of page faults for the following given page reference string. Give input n as the number of memory frames.

Implement FIFO.

Reference String : 12,15,12,18,6,8,11,12,19,12,6,8,12,15,19,8   **[10 marks]**

Q 2) Write a C program that behaves like a shell which displays the command prompt '**myshell$**'. It accepts the command, tokenize the command line and execute it by creating the child process. Also implement the additional command 'count' as

myshell$ count c filename: It will display the number of characters in given file

myshell$ count w filename: It will display the number of words in given file

myshell$ count l filename: It will display the number of lines in given file **[20 marks]**

Q 3) Viva   **[5 marks]**

Slip6

Q 1) Write a program that demonstrates the use of nice() system call. After a child process is started using fork(), assign higher priority to the child using nice() system call. **[10 marks]**

Q 2) Write the program to simulate Preemptive Shortest Job First (SJF) -scheduling. The arrival time and first CPU-burst for different n number of processes should be input to the algorithm. Assume the fixed IO waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time. **[20 marks]**

Q 3) Viva **[5 marks]**

Slip7

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Write a program that demonstrates the use of nice() system call. After a child process is started using fork(), assign higher priority to the child using nice() system call.**[10 marks]**

Q 2)   Write the simulation program to implement demand paging and show the page scheduling and total number of page faults for the following given page reference string. Give input n as the number of memory frames.

1: Implement FIFO

2: Implement LRU

Reference String : 12,15,12,18,6,8,11,12,19,12,6,8,12,15,19,8   **[20 marks]**

Q 3) Viva   **[5 marks]**

Slip8

Savitribai Phule Pune University

T.Y.B.Sc Computer Science Practical Examination Feb-2022

Semester V (2021 pattern)

Lab Course CS-357 Lab Course I (Operating System-I)

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Implement the C Program to create a child process using fork(), display parent and child process id. Child process will display the message "I am Child Process" and the parent process should display "I am Parent Process".   **[10 marks]**

Q 2)   Write the simulation program to implement demand paging and show the page scheduling and total number of page faults for the following given page reference string. Give input n as the number of memory frames.

Implement FIFO

Implement OPT

Reference String : 12,15,12,18,6,8,11,12,19,12,6,8,12,15,19,8 1)   **[20 marks]**

Q 3)   Viva   **[5 marks]**

Slip9

Q 1   Write the simulation program to implement demand paging and show the page scheduling and total number of page faults for the following given page reference string. Give input n as the number of memory frames.

Implement FIFO.

Reference String : 12,15,12,18,6,8,11,12,19,12,6,8,12,15,19,8   **[10 marks]**

Q 2)   Write a C program that behaves like a shell which displays the command prompt '**myshell$**'. It accepts the command, tokenize the command line and execute it by creating the child process. Also implement the additional command 'count' as

myshell$ count c filename: It will display the number of characters in given file

myshell$ count w filename: It will display the number of words in given file

myshell$ count l filename: It will display the number of lines in given file.   **[20 marks]**

Q 3) Viva   **[5 marks]**

Slip10

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Implement the C program to accept n integers to be sorted. Main function creates child process using fork system call. Child process sorts the integers using bubble sort and waits for Parent process using wait system call.   **[10 marks]**

Q 2)   Write the program to simulate FCFS CPU-scheduling. The arrival time and first CPU-burst for different n number of processes should be input to the algorithm. Assume that the fixed IO waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time.   **[20 marks]**

Q 3) Viva   **[5 marks]**

Slip11

Savitribai Phule Pune University

T.Y.B.Sc Computer Science Practical Examination Feb-2022

Semester V (2021 pattern)

Lab Course CS-357 Lab Course I (Operating System-I)

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Implement the C program to accept n integers to be sorted. Main function creates child process using fork system call. Parent process sorts the integers using bubble sort and waits for child process using wait system call.   **[10 marks]**

Q 2)   Write the program to simulate Pre-emptive Shortest Job First (SJF) -scheduling. The arrival time and first CPU-burst for different n number of processes should be input to the algorithm. Assume the fixed IO waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time.   **[20 marks]**

Q 3)   Viva   **[5 marks]**

Slip12

Duration: 3 Hours **Maximum Marks: 35**

Q 1)   Write a program that demonstrates the use of nice() system call. After a child process is started using fork(), assign higher priority to the child using nice() system call. **[10 marks]**

Q 2)   Write the simulation program to implement demand paging and show the page scheduling and total number of page faults for the following given page reference string. Give input n as the number of memory frames.

Implement FIFO

Implement MFU

Reference String : 12,15,12,18,6,8,11,12,19,12,6,8,12,15,19,8   **[20 marks]**

Q 3)   Viva   **[5 marks]**

Slip13

Q 1)   Implement the C Program to create a child process using fork(), display parent and child process id. Child process will display the message "I am Child Process" and the parent process should display "I am Parent Process".   **[10 marks]**

Q 2) Write a C program that behaves like a shell which displays the command prompt '**myshell$**'. It accepts the command, tokenize the command line and execute it by creating the child process. Also implement the additional command 'list' as

myshell$ list f dirname: It will display filenames in a given directory.

myshell$ list n dirname: It will count the number of entries in a given directory.

myshell$ list i dirname: It will display filenames and their inode number for the files in a given directory.   **[20 marks]**

Q 3)   Viva   **[5 marks]**

Slip14

Q 1)   Write the simulation program to implement demand paging and show the page scheduling and total number of page faults for the following given page reference string. Give input n as the number of memory frames.

Implement FIFO.

Reference String : 12,15,12,18,6,8,11,12,19,12,6,8,12,15,19,8   **[10 marks]**

Q 2)   Implement the C program to accept n integers to be sorted. Main function creates child process using fork system call. Parent process sorts the integers using bubble sort and waits for child process using wait system call. Child process sorts the integers using insertion sort.   **[20 marks]**

Q 3)   Viva   **[5 marks]**

Slip15

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Write a C program to illustrate the concept of orphan process. Parent process creates a child and terminates before child has finished its task. So child process becomes orphan process. (Use fork(), sleep(), getpid(), getppid()).   **[10 marks]**

Q 2)   Write the program to simulate Non-preemptive Shortest Job First (SJF) -scheduling. The arrival time and first CPU-burst for different n number of processes should be input to the algorithm. Assume the fixed IO waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time.   **[20 marks]**

Q 3) Viva   **[5 marks]**

Slip16

Q 1)   Implement the C Program to create a child process using fork(), display parent and child process id. Child process will display the message "I am Child Process" and the parent process should display "I am Parent Process". **[10 marks]**

Q 2)   Write the program to simulate Pre-emptive Shortest Job First (SJF) -scheduling. The arrival time and first CPU-burst for different n number of processes should be input to the algorithm. Assume the fixed IO waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time. **[20 marks]**

Q 3) Viva   **[5 marks]**

Slip17

Savitribai Phule Pune University

T.Y.B.Sc Computer Science Practical Examination Feb-2022

Semester V (2021 pattern)

Lab Course CS-357 Lab Course I (Operating System-I)

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Implement the C program to accept n integers to be sorted. Main function creates child process using fork system call. Parent process sorts the integers using bubble sort and waits for child process using wait system call.   **[10 marks]**

Q 2)   Write the simulation program to implement demand paging and show the page scheduling and total number of page faults for the following given page reference string. Give input n as the number of memory frames.

Implement FIFO

Implement LRU

Reference String : 12,15,12,18,6,8,11,12,19,12,6,8,12,15,19,8   **[20 marks]**

Q 3) Viva   **[5 marks]**

Slip18

Q 1)   Write a program that demonstrates the use of nice() system call. After a child process is started using fork(), assign higher priority to the child using nice() system call. **[10 marks]**

Q 2)   Write the program to simulate Non-pre-emptive Priority scheduling. The arrival time and first CPU-burst and priority for different n number of processes should be input to the algorithm. Assume the fixed IO waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time.   **[20 marks]**

Q 3) Viva   **[5 marks]**

Slip19

Duration: 3 Hours   **Maximum Marks: 35**

Q 1)   Implement the C Program to create a child process using fork(), display parent and child process id. Child process will display the message "I am Child Process" and the parent process should display "I am Parent Process"   **[10 marks]**

Q 2)   Write the program to simulate Non-pre-emptive Priority scheduling. The arrival time and first CPU-burst and priority for different n number of processes should be input to the algorithm. Assume the fixed IO waiting time (2 units). The next CPU-burst should be generated randomly. The output should give Gantt chart, turnaround time and waiting time for each process. Also find the average waiting time and turnaround time.   **[20 marks]**

Q 3)   Viva   **[5 marks]**

Slip20