UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2021

Course: Shell Programmiong

Program: BCA (IoT)

Course Code: CSBC 3011

Semester: V
Time 03 hrs.
Max. Marks: 100

SECTION A
1. **There are 5 questions in this section. Each question will carry 4 Marks.** **(5x4=20)**

S. No.		CO
Q 1	What are environment variables in shell? Give one example of setting shell environment variable. (1+3)	CO2
Q 2	Write a shell program to generate Fibonacci series up to n terms.	CO1
Q 3	Write a shell script to find all the instances of "teacher", in a given text file.	CO2
Q 4	Explain with an example the function of getopts statement.	CO3
Q 5	Write a shell script to check if a given number is prime or not.	CO2

SECTION B
1. **There are 4 questions in this section. Each question will carry 10 Marks.** **(4x10=40)**

Q 6	Describe the fundamentals of UNIX shells in details	CO1
Q 7	Write a shell script to calculate the salary of an employee if her DA is 75% of the basic and HRA is 30% of the Basic. If the employee is a manager, then she gets an extra allowance of Rs 30,000 flat. The basic of a normal employee cannot be more than Rs 1 Lakh and that of a manager should be within Rs 2 Lakh.	CO2
Q 8	Describe in detail, how tasks may be automated using functions in shell programming.	CO4
Q 9	Write a shell script using function for finding the average waiting time and average turnaround time of three processes with burst times of 3, 9 and 6, when FCFS CPU scheduling has been applied. OR Write a shell script using function for finding the average waiting time and average turnaround time of three processes with burst times of 10, 4 and 4, when SJF CPU scheduling has been applied.	CO4

SECTION-C

1. There are 2 questions in this section. Each question carries 20 Marks.

Q 10	Describe with proper example how trap command is used for debugging shell scripts. Explain, what are interactive scripts and how can they be used for performing multiple operations. (10+10).	**CO3**
Q 11	(a) Write down all the commands which display environment variables. Differentiate between absolute path and relative path. Explain the working of history command along with all its options. Write down the steps of configuring the history command. (5+3+5+7) OR (b) Explain in detail the concept of ownership and permission in shell programming. Write down with example, how chmod command can be used to change permission in different files. Write a shell script to find the total number of head movements in a hard disk for SSTF algorithm when the initial head position is 50 and the request queue is as follows: 63, 90, 65, 14, 18, 129, 29, 53, 54, 167, 45 and 72. (7+5+8)	**CO2, CO3**