UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course Code & Name: CSEG1002 - Programming and Data Structures	Semester: I

Programme: B.Tech. CSE (AI&ML, BAO, BFSI, ECRA, OGI, CCVT, CSF, MFT, MAD, OSS, GG, IOT, ITI, BCT, DevOps, BigData), B.Tech. CSE LLB Cyber Law, BCA (IOT, BFSI)	Time: 03 hrs. Max. Marks: 100 No. of page(s): 2

Instructions: Questions in each Section should be answered in the given sequence.

SECTION A (20 marks)

S.No.		Marks	CO
Q1	Tabulate the different C format specifiers that can be used with printf() and scanf() clearly stating its role.	4	CO1
Q2	With the help of code snippets explain the use of break and continue statements.	4	CO1
Q3	What is Data Structure? Why do we need them? Give some Example.	4	CO2
Q4	Illustrate the use of dynamic memory management functions with suitable syntax.	4	CO3
Q5	Provide an algorithm to reverse a string using a Stack.	4	CO4

SECTION B (40 marks)

Q6	Draw flow chart to find the reverse of a given number using while and do-while and compare these statements.	8	CO1
Q7	Write a program to print Fibonacci series using recursion for 'n' terms.	8	CO2
Q8	We have a class of 60 students who study Five subjects (100 Mark Each). Minimum passing of each subject is 35 marks & overall Passing is 40%. A student failed in more than 2 subjects is considered failed. You need to write a code to take input of all students & all subject. Calculate & print Number of students passed & failed.	8	CO3
Q9	Convert to postfix using Stack (All steps to be provided and explained): A + (B * C - (D / E – F) * G) * H (OR) Write a program to perform insertion and deletion from the beginning of a single Linked List.	8	CO4
Q10	Write notes on the following with example: fprintf, fscanf, fgets, fputs (OR) Write a program to create file named 'MyFile.txt' and write "End-Semester Exam" on the file and display its content on the screen.	8	CO5

SECTION-C (40 marks)

Q11	(a) Explain the use of variadic functions using a C program. (OR)	20	CO2

	Tabulate the characteristics of different C storage class specifiers. Illustrate the use of static keyword using a C program. (b) Write a program to find the transpose of a dynamically allocated matrix of given order. (OR) Write a program to add two complex numbers by passing a structure to a function as argument.		**CO3**
Q12	(a) Illustrate insert, delete, and display operations on a Queue using array. (b) Write down the algorithm & C code to implement Insertion Sort.	**20**	**CO4** **CO5**