FY-ACAD-33(a) Clause No.: 9.1	SHRI RAMDEOBABA COLLEGE OF ENGINEERING & MANAGEMENT, NAGPUR-440013	Rev: 01
Department: CSE (Data Science)	Course: Data Structure and Algorithm Course Code: CDT201 **TEST-I**	Page: 01/01 Date: 29/12/2021
MAX MARKS: 15	Session: 2021-22	TIME: 1 Hour

Instructions:
Assume suitable data wherever necessary

Q.1.A
i
	Find the complexity of following code in terms of f(n) and Big-O:
	`int sum=0;`
	`int i=0;`
	`while(i<10)`
	`{`
	`  i++;`
	`  j=0;`
	`  while(j<i)`
	`  {`
	`  printf(" j = %d" , j);`
	`  j=j/2;`
	`  }`
	`}`
		2	CO1

ii.	`for(i=0;i<n;i++)`
	`  for(j=0;j<n;j++)`
	`  for(k=0;k<n;k=k*2)`
	`  printf("hello");`		

Q.1.B	Consider column major implementation of 2D array A. B- Base address W- Size of each element: 4 bytes L1- Lower bound of rows : 0 U1- Upper bound of rows : 3 L2- Lower bound of columns: 0 U2- Upper bound of columns : 3 Address of element A[3][2] is 2026. What is the Base Address of the 2D array A? What is the address of element A[2][3]?	2	CO1
Q.2.A	Convert Infix Expression to Postfix Expression using stack. Show the Stack status after every operation. (A+B-C) - (D*E/F) / K	4	CO2
Q.2.B	Write a program to implement **circular queue** as per the modifications given below. When inserting the elements, 2 elements can be inserted at once. If the queue has space for 1 element no insertion can be made. When deleting the elements 1 element should be deleted at once. Write proper overflow and underflow conditions.	3	CO2
Q.3.A	Write function to create a single linked list. The linked list stores an integer and a char variable. Take input from user as an integer and multiply it by 3, if the answer is even number then store 'E' in char(in node), otherwise store 'O' in char(in node). Write proper display function to display the linked list.	4	CO2

************All the Best************