	B.M.S. COLLEGE OF ENGINEERING, BANGALORE-19 (Autonomous Institute, Affiliated to VTU) **Computer Science & Engineering**
INTERNALS-2	
Course Code: 22CS3PCDST	**Course Title: Data Structures**
Semester: 3	**Maximum Marks: 40** **Date: 21-01-2023**
Faculty Handling the Course:	Dr. SKS, Prof. NM, Dr.JSN, Dr. BSR
Instructions: *Internal choice is provided in Part C.*	

PART-A

Total 5 Marks (No Choice)

No.	Question	Marks
1	Differentiate between singly linked lists and circular linked list.	05

PART-B

Total 15 Marks (No Choice)

No.	Question	Marks

a	Consider the following function that takes reference to the head of a Circular Linked List as parameter.
	
	`void call_fun(struct node *head)`
	`{`
	`struct node *ptr, *preptr;`
	`if(head==NULL)`
	`{ printf("Empty List");`
	`}`
	`else if (head ->next == head)`
	`{ head = NULL;`
	`free(head);`
	`}`
	`else`
	`{`
	`ptr = head;`
	`while(ptr ->next != head)`
	`{`
	`preptr=ptr;`
	`ptr = ptr->next;`
	`}`
	`preptr->next = ptr -> next;`
	`free(ptr);`
	`}`
	`}`
	Assume that reference of head of following circular linked list is passed to above function 10 --> 20 --> 35 --> 15 --> 45 -->50.
	Analyze the above code and write a neat diagram to represent the modified linked list and its contents after the function call.
		05

	The singly Linked List consists the following items as follows: 15-> 32-> 63-> 20-> 45. After the function is called the list is displayed as follows: 45-> 20-> 63-> 32-> 15.	05

	Write the C-Function that performs the above operation.

2c	Analyze the following C function takes a singly-linked list as input argument pop the element from the list and returns the item. Complete the blank part of code to perform the above operation.
	
	`typedef struct node`
	`{`
	`  int value;`
	`  struct node _____`
	`}Node;`
	
	`int function(Node *head)`
	`{`
	`  _____ *ptr;`
	`  if(head == NULL)`
	`  {`
	`  printf("\nList is empty");`
	`  }`
	`  else`
	`  {`
	`  _____`
	`  _____`
	`  _____`
	`  return ptr->value;`
	`  }`
	`}`

PART- C

Total 20 Marks (Choice between question 3a & 3b, choice between question 4a & 4b)

No.	Question
3a	Car company advertised customer to register their name and mobile nu for the new car test drive. It has noticed the duplicate entry of the custom their final list. Write a solution (C function) to display the participant's n list without any duplicates using Singly Linked List.
	(OR)
3b	Laptop company maintains their customer details (name and email id sending their latest laptop details. Implement a solution (c function u doubly linked list) to maintain the list in alphabetical order and to print customer's name.
4a	Implement a personal song play list from YouTube. Create a list by ad songs. Play the list, once all the songs from the list are played then start thi from the beginning.
	(OR)
4b	The students have registered for a course in a college through two portals. student's enrolment list in each portal is sorted in Alphabetical order(na Implement a function to combine these lists and make it as a single list. F list also should be in Alphabetical order Note : Assume already lists are created and develop the required function