



Max Marks: 100

1.	a.	Describe Program Development Life cycle of C Program with a neat diagram.	6
	b.	Choose the valid Keywords and Variables from the below set of identifiers. for, Int, double, stdio	4
	c.	Mention the outputs of below code snippets separately. i) printf("%d",++3); ii) printf("%d", -1?0:1); iii) int a; printf("%d",a=0 && 2==2); iv) int a; printf("%d",a=10 2==2);	4
	d.	Write a C Program to find and display the number of characters and words in a user input. Program must take one line of input from the user.	6
2.	a.	Given an array of 6 integers, write a function definition which returns the second biggest element from the given array. Test this function in the client code.	6
	b.	List any four differences between Pointer and Array.	4
	c.	Write the output of below code. #include<stdio.h> int main() { int a[6] = {77,22,34,66,99}; int *b = a; printf("%d ",a[5]); printf("%d ",++*b); int *c = b; printf("%d ",(*c)+1); printf("%d ",(*c)++); return 0; }	4
	d.	Given two strings, write the code snippet to display the count of every letter from string1 in string2. Sample input: string1: "cat" string2: "catalog" Sample output: c – 1 a – 2 t – 1 Sample input: string1: "eat" string2: "pattern" Sample output: e – 1 a – 1 t – 2 Sample input: string1: "very" string2: "interview" Sample output: v – 1 e – 2 r – 1 y – 0	6

3.	a.	Write a C Program to read the details of n students from the user. Student details to be read are SRN, Name, Semester and Address. Display the name and address of students studying in semester 6.	6
	b.	<pre> struct Car { int year; char company[100]; }; typedef struct Car car_t; </pre> <p>Given the above structure definition and alias for it, write the C statements for the following.</p> <p>i) Create a pointer to structure.</p> <p>ii) Allocate memory for both the members of the structure dynamically</p> <p>iii) Assign values to both the members of the structure through this pointer.</p>	4 (1+1+2)
	c.	<p>Write the outputs of the following code.</p> <pre> int main() { int arr[2][3] = {{11,44,25},{34,55,77}}; int (*p)[3] = arr; printf("%d %d %d %d", arr[0][3],arr[1][1],(*p)[1],(*p)[3]); return 0; } </pre>	4
	d.	<p>Given the structure definitions, alias for it and the client code, write the definition of insert_list function so that it creates the ordered list in ascending order for a given n elements.</p> <pre> struct node { int info; struct node *link; }; typedef struct node NODE_T; struct mylist { NODE_T* head; }; typedef struct mylist MYLIST_T; #include<stdio.h> int main() { MYLIST_T mylist; mylist.head=NULL; printf("enter the number of elements u want to insert\n"); int n,ele; int i; scanf("%d",&n); for(i = 0;i<n;i++) { printf("enter the element-->"); scanf("%d",&ele); insert_list(&mylist,ele); } printf("Elements of the list are\n"); display_list(&mylist); free_list(&mylist); } </pre>	6

4.	a.	Describe the below with code snippets. i) Array of pointers to integers ii) Array of pointers to structures	8 (4 each)
	b.	Name any two Searching techniques in Programming.	2
	c.	A csv file contains the data of books in the below format and it contains data of 500 books. id, title, publisher, edition, year_of_publishing. Include the following code snippets. i) Define a suitable structure ii) Extract the details of all the books and store it in an appropriate structure variable. iii) Write the function definition of selection sort to sort these books based on the year of publishing	10 (2+4+4)
5.	a.	What is a storage class? Explain the below two. i) auto ii) register	5
	b.	What is the output of below code? Mention the reason. #include<stdio.h> #include<stddef.h> struct Binary { unsigned int a:2; unsigned int b:4; }; union Ternary { int a; int b; char c[100]; }; int main() { struct Binary b; b.b = 16; printf("%d %d",b.b, offsetof(union Ternary, c)); return 0; }	4
	c.	Write a C program to display the sum of all even integers passed as command line arguments during the code execution.	5
	d.	Write the outputs of below code. i) enum City { Bangalore, Mysore = 5, Mangalore, Pune }; int main() { printf("%d %d ", Mysore, Bangalore); enum City c = Pune; printf("%d %d",c*Mysore,c/Mysore); return 0; } ii) #include<stdio.h> int modify() { static int a = 10; printf("%d ",a); --a; return a; } int main() { modify(); modify(); return 0; }	6 (4+2)