Unit – III

7.	a)	What is a file?. Explain various file manipulation functions with example.	08	L2
	b)	Define a pointer?. Explain how pointer variable is declared and initialized with syntax and example.	06	L2
	c)	Build a structure called Employee with the fields: Name, Branch and Experience and input the details of 2 employees and display it.	06	L3
8.	a)	Build a C program to copy contents of one file to another file.	08	L3
	b)	What is structure?. Explain the syntax of structure definition and declaration with example.	06	L2
	c)	Develop a C program using pointers to compute the sum of all elements stored in an array.	06	L3

BT* Bloom's Taxonomy, L* Level; CO* Course Outcome; PO* Program Outcome

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NMAM INSTITUTE OF TECHNOLOGY, NITTE

(An Autonomous Institution affiliated to VTU, Belagavi)

First Semester B.E. (Credit System) Degree Examinations

Make up Examinations – July – August 2021

20CS111 – C PROGRAMMING FOR PROBLEM SOLVING

tion: 3 Hours | Max. Marks: 100

e: *Answer **Five full questions** choosing **Two full questions** from **Unit – I & Unit – II each** and **One full question** from **Unit – III.***

		Marks	BT*	CO*	PO*
	Unit – I				
a)	Explain the basic structure of a C program with an example.	08	L*2	1	1
b)	Define a token. Explain the different tokens available in C language.	08	L2	2	1
c	Illustrate Right shift and Left Shift operators with example.	04	L2	2	1
a	List out the types of computers. Explain various applications of computers and its advantages.	08	L2	1	1
b	Explain short hand assignment operators with its advantages.	06	L2	2	1
c	Define rules to declare an identifier and identify the following words are valid/invalid identifier with justification. i)float ii) 123_in iii) @india iv) asd45	06	L1	2	2
a)	Explain the various steps involved in program development with a neat diagram.	08	L2	1	1
b)	List all the operators used in C language and solve the following expression. y = a – b / 3 + c * 2 -1 when a=9, b=12, c=3.	06	L3	2	2
c)	What is a conditional operator?. Build a C program to find the largest of three numbers using conditional operator.	06	L3	2	1
	Unit – II				
a	List and explain the conditional control statements in C with syntax and example.	10	L2	3	1
b	Define an array. Explain declaration and initialization of one dimensional and two dimensional arrays with example.	06	L2	4	1
c	Differentiate between while loop and do-while loop . Explain with syntax and example.	04	L2	3	1
a	What are functions?. Explain the following terms with example. i) Function declaration ii) function definition iii) function call	08	L2	4	1
b	Explain the following string manipulation functions with syntax and code fragments. i) Strlen ii) strcmp iii) strcpy	06 06	L2 L2	4 3	1 1
c)	Explain switch statement with proper syntax and example.				
a)	List and explain the various categories of user defined functions with example.	10	L2	4	1
b)	Explain C language statements break, continue and goto.	06	L2	3	1
c)	Build a C program to find the sum of N natural numbers using for loop.	04	L3	3	2

P.T.O.

b) Define Type conversions and explain the available type conversions in C with examples. 7
c) Write the rules for constructing variables in C language. 5

4. a) Write a C program to check if a given number is a strong number (or) not, Use event controlled loop and two way selection statements of C.
Input : 123=1! + 2! + 3! = 1+2+6=9
Output: 123 → is not a strong number
Input : 145 = 1! + 4! + 5! = 1 + 24 + 120 = 145
Output : 145 → is a strong number 8
b) Differentiate between pre and post test loops in C and write a C program to check whether a given number is palindrome (or) not using do while loop. 8
c) Write a C program to swap two elements and display the results. 4

5. a) Illustrate the initialization of 1 dimensional array during declaration and by input statements with a program that reverses the elements of an array.
Input : arr={1, 2, 3, 4, 5}
Output : Reversed array is : { 5, 4, 3, 2, 1} 7
b) Write a C program to find Transpose of a matrix. 8
c) Predict the output for the following code.

```
#include <stdio.h>
int main()
{
   int a[5] = { 1, 2, 3, 4, 5};
   char str1 = "abcd", str2 = "abcd";
   printf ("\n%d\t%d", ++a[1], a[1]++);
   printf ("\nSize of array: %d", size of (a));
   if( "hi" == "hi")
        printf ("\nEqual");
   else
        printf ("\n Not Equal");
   if (srt1= =str2)
        printf ("\nEqual");
   else
        printf("\nNot Equal");
   printf ("\n%d", a[5]);
   return 0;
}
```

5

6. a) State whether the following statements are True/False.
i) An array stores all its data elements in consecutive memory location.
ii) Binary search is performed on Unsorted array.
iii) Linear search locates the values by starting at the beginning of the array and moving towards the end.
iv) The declaration int x[5]={1, 2, 3}; is valid. 4
b) Demonstrate the following string built in functions with examples: strcmp( ), strcat( ), strcpy( ) and strlen( ). 8
c) Write a C program to read a matrix and perform the row sum, column sum and sum of all elements of given matrix and display the result. 8

7. a) Define structure. Explain the different ways of structure initialization in C with examples. 8
b) Define a pointer. List any five advantages of pointer. 6
c) Explain how to read data from files and writing data to files with suitable examples. 8

8 a) Write a C program using pointers to compute the sum of all the elements stored in an array. 8
b) Explain the following file functions in C:
fscanf( ), fgets( ), fprintf( ) and fputs( ) 8
c) Write a C program using pointers to calculate the length of the string. 4

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First / Second Semester B.E. (Credit System) Degree Examinations

Make up/Supplementary Examinations - September 2021

20CS111 – C PROGRAMMING FOR PROBLEM SOLVING

17CS111 – COMPUTER CONCEPTS AND 'C' PROGRAMMING

Duration: 3 Hours

Max. Marks: 100

*Note: Answer any **Five full** questions.*

		Marks	BT*
a)	Find the range (Min and Max) of the datatypes given below, considering the size of the data types are: Char-1 byte, short-2 byte and int-4 bytes. i) Signed char ii) Unsigned char iii) Signed short iv) Unsigned short v) Signed int vi) Unsigned int	6	L*2
b)	Write a C program to compute straight line distance between two points in a plane.	8	L2

c)	Predict the output for the following C code.
	`# include < stdio.h>`
	`int main()`
	`{`
	`char arr[100];`
	`printf ("%c\n", 5["WelcomeToC"]);`
	`printf (5 + "WelcomeToC");`
	`printf ( "\n%C", "WelcomeToC" [5]);`
	`printf ( "\n%3d", (15/2));`
	`printf ( "\n%06d"' (15/2));`
	`printf ( "%d"' scanf (" %s", arr));`
	`/* suppose that input value given for above scanf is`
	`"WelcomeToC" */`
	`return 0;`
	`}`
		6	L2

a)	Define the following: i) Computer software ii) Assembly level language iii) Debugging iv) Algorithm v) System software vi) Software life cycle	6	L1
b)	Illustrate the different ways in which a character is read and written in C. Write a C program to check whether character entered is alphabet (01) digit (00) punctuation using ternary operator.	7	L2
c)	Define C-Tokens with its types. Write a C program to find the area of circle.	7	L1

a)	Predict the output for the following code.
	`# include <stdio.h>`
	`int main()`
	`{`
	`int x=10, y=20, a, b;`
	`float z;`
	`x=x+ x++ +++x + x;`
	`printf ( "%d\n"' X);`
	`printf ( "%d\t%d\t%d\n", ++y, y++, y);`
	`printf ( "%f", ( x&&y));`
	`z=1.2;`
	`if (z= =1.2)`
	`printf("\n Equal");`
	`else`
	`printf ("\n Not Equal");`
	`printf ("\n %d", 'A' + 6-3%2+8);`
	`a = 10, 20, 30;`
	`b = (10, 20, 30);`
	`printf( "\n a=%d, b=%d\n", a,b);`
	`return 0;`
	`}`
		8	L2

P.T.O.