Reg. No._____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SECOND SEMESTER B.TECH DEGREE EXAMINATION, MAY 2017

Course Code**: CS100**

Course Name**: COMPUTER PROGRAMMING (CS, IT)**

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all Questions.

1. What are identifiers? Give the rules for forming identifiers in C. (3)
2. What do you mean by associativity? What is the associativity of unary operators?(2)
3. Explain the use of continue statement with the help of an example. (3)
4. What are library functions? (2)
5. What is the use of a function prototype? Give the function prototype of a function accepting one float value and an integer array and return a float array. (3)
6. Write a function to compute the length of a string declared using a pointer variable.(3)
7. How do you initialize a two dimensional array during declaration? (2)
8. What are enumerated data types? How ordinal values are assigned to its members?(3)
9. Explain the difference between *ptr++ and (*ptr)++ if ptr is pointing to the first element of an integer array. (3)
10. With an example, show how you can access the members of a structure variable using a pointer to the variable. (2)
11. Explain any three file opening modes? (2)
12. How can you perform read and write operations on an unformatted data file? (3)
13. Explain static storage class with the help of an example. (2)
14. Explain the arguments passed to the main function as command line arguments. (3)
15. What is a NULL pointer? (2)
16. Explain the use of indirection operator with the help of an example. (2)

PART B

Answer any 4 complete questions, each having 8 marks.

17. a) Write a C program to compute the sum of first n terms of the series: $1 + \frac{2}{3!} + \frac{3}{5!} + \frac{4}{7!} + ..$ (5)

    b) What do you mean by typecasting? (3)

18. a) Discuss the difference between call by value and call by reference parameter passing techniques with the help of suitable examples. (6)

    b) Explain any two bit level operators with examples. (2)

19. a) Write a C program to perform selection sort on a set of numbers. The set of numbers should be accessed using a pointer pointing to the first element. Do not use an array to hold the numbers. (6)

    b) What is the use of typedef construct in C? (2)

20. a) Write a C program to concatenate two strings without using any standard library functions. (5)

    b) Discuss the differences and similarities between a structure variable and a union variable. (3)

21. a) Write a recursive function to perform binary search on a set of sorted numbers. (5)

    b) How do you declare constants in C? (3)

PART C

Answer any two questions each having 14 marks.

22. a) Write a program to compute the product of two matrices. Use array of pointers to access the matrices. (10)

    b) Explain dangling else problem. (4)

23. a) Assume there are two files first.txt and second.txt. Write a C program to merge the contents of two files into a new file third.txt. (10)

    b) What is dynamic memory allocation? (4)

24. a) A student database stores following information about students in a class: Rollno, name, gender, CGPA .Write a program to prepare a ranklist based on CGPA . Also prepare a list of students having CGPA less than 7. (10)

    b) Explain scope of a variable with suitable examples. (4)

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Total Pages: 2

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SECOND SEMESTER B.TECH DEGREE EXAMINATION, JULY 2017

Course Code: CS100

Course Name: COMPUTER PROGRAMMING (CS, IT)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all Questions.

1		What is a variable? How are the variables declared in C?	(2)
2		How does x++ differ from ++x? Explain with suitable examples.	(3)
3		Give the declaration of variable for storing the string "PROGRAMMING" in C.	(2)
4		What is the purpose of a switch statement?	(2)
5		Give the differences between while and do-while statement	(3)
6		What are formal arguments and actual arguments in a function?	(2)
7		What are function prototypes? Why do we use function prototypes?	(3)
8		How is an array name interpreted when it is passed to a function?	(2)
9		How do you declare a pointer variable? What is the significance of the datatype included in the declaration?	(3)
10		How do you interpret the following function declaration? int *p(char a[])	(2)
11		What is the purpose of typedef feature?	(2)
12		What is union? How does it differ from a structure?	(3)
13		What do you mean by opening of a file? How is this accomplished?	(3)
14		What are enumeration constants? How ordinal values are assigned to them?	(3)
15		Discuss the different parameters that are passed to main function as command line arguments.	(3)
16		Explain register storage class with the help of an example.	(2)

PART B

Answer any four questions. Each carries 8 marks.

17	a)	Write a C program to test whether a given number is palindrome or not.	(5)
	b)	Discuss the differences between break and continue statements in C.	(3)
18	a)	Write a C program to find the largest and smallest numbers and their locations in an array of n numbers.	(5)
	b)	Explain recursion with the help of an example.	(3)
19	a)	Write a C program to sort a set of numbers using bubble sort.	(6)
	b)	Discuss any four bit level operators with suitable examples.	(2)
20	a)	Write a C program to find the transpose of a matrix.	(6)
	b)	How can you access structure members using a pointer to structure variable?	(2)
21	a)	Write a C program to concatenate two strings without using any standard library function.	(6)
	b)	What is the use of an indirection operator?	(2)

PART C

Answer any two questions. Each carries 14 marks.

22 a) Write a function to perform binary search on a set of sorted numbers. Write a complete C program which accepts a sorted array of N numbers and invokes the function to check for the presence of a particular key element in the array. (10)

b) Compare formatted files and unformatted files (4)

23 a) Write a program to count the number of vowels, consonants, digits and special characters in a text file. (10)

b) Discuss the different parameter passing techniques. (4)

24 a) A library database maintains following information about books:- book_id, name, author, no_of_copies. Write a program to sort the books based on the decreasing order of number of copies available. (10)

b) What are array of pointers? How do you declare an array of pointers? (4)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SECOND SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: CS100

Course Name: COMPUTER PROGRAMMING (CS, IT)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions.

Marks

1 Differentiate between Keywords and Identifiers in C. (3)

2 What will be the output of the following code and justify your answer. (3)

```
#include <stdio.h>
void funX()
{
 static inti=1;
i*=2;
printf("%d ", i);
}
main()
{
inti;
for(i=0;i<4;i++)  funX();
}
```

3 Write a C program to accept a 2-D integer matrix and check whether it symmetric or not. (3)

4 Differentiate between Structure and Union in C. (3)

5 What are pre-processor directives? List any two pre-processor directive and their uses. (3)

6 Explain any 3 bitwise operators and 3 logical operators in C, with example. (3)

7 What will be the value of someFunction(5,2) for the following definition of someFunction? Justify your answer. (3)

```
void someFunction(int a, int b)
{
int *ptr;
   a = 0;
ptr = &a;
   b = *ptr;
   *ptr = 1;
printf("%d,%d", a, b);
}
```

8 Explain any Six File opening modes available in C. (3)

9 Explain the concept of Command Line Argument in C with example (2)

10 Write a C program to check whether a characteris present in a string. (2)

11 What will be the output if doSomething(117,17) is called with the following definition? (2)

```
intdoSomething(int a, int b)
 {
  if (b != 0)
    return doSomething(b, a%b);
  else
    return a;
 }
```

12 Explain how a pointer is assigned with a structure in C and how the member variable of structure is accessed using this pointer? (2)

13 What are function prototypes? Is Function prototype mandatory for every user defined function in C? Justify your answer. (2)

14 Write a C program to find the largest among three given numbers, by applying conditional operator. (2)

15 How constants are defined in C programs. Explain? (2)

16 Write a C program to findsum of digits in an integer. (2)

PART B

Answer any 4 full questions, each carries 8 marks.

17 a) For the declaration int p=1, q=1, r[25]={1}, s[5][25]={{1}}; , check the validity of the given pointer usages and if valid provide the value of the statement. Support your answer with proper explanation. (5)

i) *p ii) &(p+q) iii) *(&p) iv) *2017 v) *s[0]

b) What will be the output of the following code? Justify your answer. (3)

```
#include<stdio.h>
void main()
{
 char s1[30]="2017 is prime",*s2;
 s2=s1;
*s2+=1;
 s2+=2;
printf("\n%s",s2);}
```

18 a) With suitable example explain different function parameter passing methods in C. (5)

b) Write a C program to find the length of a given string ***recursively,***without using any standard string library function. (3)

19 Explain the working of loop control statements in C with examples. (8)

20 a) What will be the output of mystery(4096,128) for the following code? Explainwhy ? (3)

```
void mystery(int A, int B)
{
        count=0;
        while(A>B) { A = A – B; count++;}
        while(B>A) { B = B – A; count++;}
    printf(“%d”, count);
}
```

b) Explain ***switch*** construct with example. (2)

c) What will be the output of the following code snippet? (3)

```
int x=1;
switch(x)
{
 case 0: printf( "Zero" );
 case 1: printf( "One" );
 default: printf( "Not allowed in binary" );
}
```

21 a) Explain with example, how break and continue constructs are useful in C programming. (5)

b) If the following code is supposed to print first 100 positive integers, which are not multiple of 3, fill Line1 and Line2 with suitable C programming statement. Justify your answer. (3)

```
void main()
{int count=0, i=0;
        while(1)
        {
        i++;
        if(i%3==0)
        ----------//Line1
        count++;
        printf("%d\t",i);
        if(count==100)
        ----------//Line2
        }
}
```

PART C

Answer any two full questions, each carries 14 marks.

22 a) Write a C program to copy the content of a given text file to a new file after replacing every lowercase letters with corresponding uppercase letters. (10)

b) With suitable example explain any four different File I/O operations in C? (4)

23 a) What are the different storage classes in C? Explain with example. (8)

b) What will be the output of the following code snippet? Answer should be supported with proper reasons. (6)

```
#include<stdio.h>
    inti=0,j=0;
    display()
{
printf("\n4: %d %d",i,j);
}
```

```
void main()
{
inti=1,j=1;
printf("\n1: %d %d",i,j);
{
    inti=2,j=2;
    printf("\n2: %d %d",i,j);
    i++;j++;
    }
    printf("\n3: %d %d",i,j);
    i++;j++;
    display();
}
```

24 a) Write a C program to accept Admission number and Name of 'N' (a positive integer) students in a class and toprepare a Roll List based on the alphabetical order of their Names. (8)

b) Write a C program for displaying the prime numbers in a *m*X*n* matrix. (6)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SECOND SEMESTER B.TECH DEGREE EXAMINATION, JULY 2018

Course Code: CS100

Course Name: COMPUTER PROGRAMMING (CS, IT)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 2 or 3 marks

		Marks
1	Describe the structure of a C program. List out the features of C Language.	(3)
2	Briefly explain basic data types in C.	(2)
3	Write a C program to find the largest among three numbers using conditional expression ((f<g)? f:g).	(3)
4	Give the syntax of four string handling functions in C.	(2)
5	Compare structure and array in C with suitable example.	(2)
6	What does the variable 'a' specifies in the following declarations in C? i) float *a; ii) int *a[10];	(2)
7	How a pointer to a structure is declared in C? Explain how members of a structure are accessed through a pointer variable.	(3)
8	List out the main components which comprise a function definition.	(2)
9	Write a C program to find the factorial of a given number using recursion method.	(3)
10	Describe actual parameter and formal parameter of a function in C program with examples.	(2)
11	Write a note on storage classes in C.	(3)
12	Explain dynamic memory allocation in C. Give in detail two dynamic memory allocation functions in C.	(3)
13	With example explain any three file opening options in C.	(3)
14	Briefly explain unformatted file in C. Give the format of fwrite function in C.	(3)
15	Consider the following function declarations: void display (int); int display(int); Differentiate between the two given declarations.	(2)
16	Briefly explain the syntax rules for switch statement.	(2)

PART B

Answer any 4 full questions, each carries 8 marks

17	a)	Write a C program to solve a quadratic equation taken into account all possible roots.	(6)
	b)	Compare while loop and do-while loop in C with an example.	(2)
18	a)	Write a C program to find the transpose of a given matrix.	(6)
	b)	List out the advantages and disadvantages of union over structure in C.	(2)
19	a)	Write a C program that reads a string from the keyboard and determines whether	(6)

the string is a palindrome or not.

b) Explain how string variables are declared and initialised in C program. (2)

20 a) Write a function in C to check whether the given number is prime or not. Call the function from main function. (5)

b) Give the advantages of pointers in C. Is there any relationship between an array name and a pointer? Justify your answer. (3)

21 a) Write a C program to read an array of integers and sort them in ascending order using pointers. (5)

b) Explain call by value and call by referencein C with an example. (3)

PART C

Answer any two questions each carries 14 marks

22 a) Write a C program to read set of numbers from an input file 'value.dat'and store the sorted numbers in an output file'sort.res'. (10)

b) How command line arguments are passed in C program? Explain with an example. (4)

23 a) Write a C program to perform selection sort for a given set of numbers and explain how the following set of numbers is sorted using selection sort. (10)
{1, 5, 3, 9, 12, 4}

b) Write a C program to sort given set of numbers using Bubble sort. (4)

24 a) Write a C program to create a text file and display its content. (7)

b) Write a C program to search a given number from a set of numbers using linear search method. Explain linear search method with an example. (7)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SECOND SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

Course Code: CS100

Course Name: COMPUTER PROGRAMMING (CS, IT)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions.

		Marks
1	Explain switch construct with an example.	(3)
2	Describe the precedence and the associativity of the logical bitwise operators.	(3)
3	Differentiate between keywords and identifiers.	(3)
4	Explain register storage class with an example.	(3)
5	Write a C program to concatenate two strings without using built in function.	(3)
6	A C program contains the following declaration static int x[8] = {11, 22,33,44,55,66,77,88}; Assume that the array begins at location 2000. (i) What is the value of (x + 2)? (ii) What is the value of * (x+ 2)? (iii) What is the value of (*x + 2)?	(3)
7	Write the syntax for : i) Declare a pointer to a function that accepts three integer arguments and returns a floating point quantity. ii) Declare a function that accepts two integer arguments and returns a pointer to a long integer.	(3)
8	Write a C program to print the Fibonacci series using recursion.	(3)
9	Discuss the concept of binary file in C.	(2)
10	What are escape sequences? What is its purpose?	(2)
11	What is the purpose of getw( ) and putw( ) function?	(2)
12	List out any two arithmetic operations that can be carried out on pointers. Give examples.	(2)
13	Differentiate between linear and binary search techniques in C.	(2)
14	What is the purpose of fopen( ) and fclose( ) functions in C.	(2)
15	What is the output of the following program?	(2)

```
int main()
{
   int i;
   int arr[5] = {0};
   for (i = 0; i < 5; i++)
```

```
        printf("%d ", arr[i]);
    return 0;
}
```

16 When a program is terminated, all the files used by it are automatically closed. Why is it then necessary to close a file during execution of the program? (2)

PART B

Answer any four full questions, each carries 8 marks.

17 a) Describe about the fundamental data-types in C. (5)

b) Write a C program to print the factors of a given number. (3)

18 a) Write a C program to create a structure student with details roll no, name, marks and grade. Read the details of 'n' students and display the details of the student if student name is given as input. (6)

b) How does an array differ from a structure? (2)

19 a) Write a C program to find the largest and smallest element in an integer array using function. (5)

b) What do you mean by a void pointer? Is it possible to dereference a void pointer? Justify your answer. (3)

20 Write a C program to sort names in an array in lexicographical order. (8)

21 a) Write a C program to find the sum of digits of a number using recursion. (3)

b) How is memory management performed dynamically in C? (3)

c) How is the declaration int * a [10] different from int (*a)[10]? (2)

PART C

Answer any two full questions, each carries 14 marks.

22 a) Write a C program to find the second largest element of an unsorted array. (6)

b) With suitable examples explain the various storage classes in C (8)

23 a) Write a C program to create a file and store information about a person, in terms of his name, age and salary. (10)

b) Write any two file handling functions used to write data into text files. (4)

24 a) Describe bitwise operations in C. (6)

b) Given a set of n items, write a C program to find the k^{th} largest item in the list. (8)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

SECOND SEMESTER B.TECH DEGREE EXAMINATION(R&S), MAY 2019

Course Code: CS100

Course Name: COMPUTER PROGRAMMING (CS, IT)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 2 or 3 marks.

		Marks
1	Describe the four data-type qualifiers in C.	(3)
2	With a suitable example explain how does a pointer point to another pointer?	(3)
3	What is a structure? How is a structure member accessed? Explain with an example	(3)
4	Write a C program to subtract two matrices.	(3)
5	When parameters are passed to a program from the command line, how is the program execution initiated? Explain with an example.	(3)
6	Discuss about unformatted data files and write on any two library functions associated with this.	(3)

7	Write the output of the program. Justify the answer
	#include<stdio.h>
	int **fun( )**
	{ static int count=0;
	count++;
	return count;
	}
	int **main( )**
	{ printf("%d", fun( ));
	printf("%d", fun( ));
	return 0; }
		(3)

8	Illustrate the steps for sorting the following set of numbers using selection sort (descending).23,97,60,11,61.	(3)
9	What are the keywords in C? What restrictions apply to their use?	(2)
10	Explain the relational and equality operators in C with example.	(2)

11	Write the output of the program
	#include<stdio.h>
	#define prod(a ,b) a*b
	int main( )
	{ int x=3,y=4;
	printf("%d",prod(x+2,y-1));
	printf("%d",prod(y+1,x-2));
	return 0;
	}
		(2)

12	What is the output of the following program? Justify your answer. #include<stdio.h> void main() { char *p = "wxyz";	(2)

```
printf("%c", *p++);
printf("%c", *p);
}
```

13 List the advantages of using pointers in C. (2)

14 What do you meant by scope of a variable in C? (2)

15 What is a stream pointer? What is the relationship between a stream pointer and buffer area? (2)

16 Explain the meaning of each of the following function prototypes. (2)

i) int f1 (int a);

ii) double f2(double a, int b);

PART B

Answer any four full questions, each carries 8 marks.

17 a) Write a C program to evaluate the series (5)

$$x - \frac{x^3}{3!} + \frac{x^5}{5!} + \frac{x^7}{7!} + \cdots$$

b) Explain increment and decrement operators with an example. (3)

18 a) Write a C program to accept a two dimensional matrix and display the row sum, column sum and diagonal sum of elements. (5)

b) Write a C program to replace a character in a string with another character. (3)

19 Using pointers, write a function that receives a character string and a character as argument and deletes all occurrences of this character in the string. The function should return the corrected string with no holes. Also write the main function to invoke the above function. (8)

20 a) Write a program to check whether a number is perfect or not. (3)

b) How will you declare variables using enumerated data type ?Explain with an example. (3)

c) Explain the purpose of typedef construct. (2)

21 Explain the various function parameter passing methods with examples. (8)

PART C

Answer any two full questions, each carries 14 marks.

22 a) Write a C program to read two sorted arrays and merge them into a single array. (8)

b) Write a C program to search for an element using binary search. (6)

23 a) Write a C program to copy the contents of a text file to another file. Pass the filename using command line arguments. (8)

b) Give the syntax and use of external storage class. (3)

c) What is an unformatted data file? List the applications of such files. (3)

24 a) Write a C program to write a set of numbers to a file and separate the odd and even numbers to two separate files. (8)

b) Differentiate static and automatic variables. (4)

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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech degree examinations (S), September 2020 (S1/S2 - 2015 Scheme)

Course Code: CS100

Course Name: BASICS OF COMPUTER PROGRAMMING (CS, IT)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 2 or 3 marks.

		Marks
1	What are pre-processor directives? Give two examples.	(3)
2	Discuss the concept of command line arguments in C.	(3)
3	Evaluate the function 'y' using conditional operator. $y=\begin{cases}1 & if\ x>5\\ 0 & if\ x\le 5\end{cases}$	(3)
4	What is the purpose of 'return' statement? Can multiple 'return' statements be included in a function? Justify your answer.	(3)
5	Differentiate between malloc and calloc functions in C.	(3)
6	What are global variables? Give examples.	(3)
7	Describe the precedence and the associativity for the bitwise shift operators.	(3)
8	What are the uses of ftell( ) and rewind( ) function?	(3)
9	What is the purpose of the one's complement operator? To what types of operands does it apply?	(2)
10	Differentiate formal and actual arguments in a function.	(2)
11	Explain single dimensional array with an example.	(2)
12	Develop a C program to generate Fibonacci series.	(2)
13	Write a C program to copy a string without using a built in function.	(2)
14	Explain nested structure with an example.	(2)
15	Describe the different ways to categorize data files in C.	(2)
16	Write a program to find the length of a string using pointers.	(2)

PART B

Answer any four full questions, each carries 8 marks.

17	a)	With suitable examples describe the conditional statements in C.	(5)
	b)	Write a C program to find the factorial of a number.	(3)
18	a)	Discuss the structure of a C program with an example.	(5)
	b)	Write a C program to print Floyd's triangle.	(3)

1

2 3

4 5 6

7 8 9 10

19 Write a C program to multiply two ***m*** x ***n*** matrices. (8)

20 a) With an example, explain how pointers and arrays are related. (3)

b) What will be the output of the following code? (5)

```
#include<stdio.h>
void main()
{
int x=10,y=10;
int *p1=&x,*p2=&y,*p3;
printf("\n%d  %d",(*p1),(*p2));
(*p1)++;
printf("\n%d",(*p1));
– –(*p2);
printf("\n%d",(*p2));
*p3 = *p1 +(*p2);
printf("\n%d ",(*p3));
*p3 = ++(*p2) − *p1;
printf("\n%d ",(*p3));
}
```

21 a) Define a C function *checkprime*( ) that accepts an integer argument and returns 1 if the argument is prime, a 0 otherwise. Write a C program that invokes this function to generate prime numbers between the given ranges. (5)

b) Describe Call by reference parameter passing mechanism in C. (3)

PART C

Answer any two full questions, each carries14 marks.

22 a) Write a C program to perform binary search on a set of sorted numbers using recursion. (6)

b) Write a C program to perform selection sort on a set of N numbers. (8)

23 a) Write a C program to read data from two text files, merge the contents of the two files into a new file and display the merged contents. (10)

b) Explain bitwise shift operators. (4)

24 a) Write a C program to check whether a given number is palindrome or not using command line arguments. (6)

b) Write a C program to read the contents of a text file and find the number of characters, lines and words. (8)

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