

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.
$y = \begin{cases} 1 & \text{if } x > 5 \\ 0 & \text{if } x \leq 5 \end{cases}$ | (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.*

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|----|---|-----|
| 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 $m \times n$ 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 (5)  
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.
- b) Describe Call by reference parameter passing mechanism in C. (3)

### PART C

*Answer any two full questions, each carries 14 marks.*

- 22 a) Write a C program to perform binary search on a set of sorted numbers using (6)  
recursion.
- 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 (10)  
two files into a new file and display the merged contents.
- b) Explain bitwise shift operators. (4)
- 24 a) Write a C program to check whether a given number is palindrome or not using (6)  
command line arguments.
- b) Write a C program to read the contents of a text file and find the number of (8)  
characters, lines and words.

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