

Enrollment No.....



Faculty of Engineering
End Sem (Odd) Examination Dec-2019
CA5CO01 Problem Solving and Programming

Programme: MCA

Branch/Specialisation: Computer
Application**Duration: 3 Hrs.****Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1 i. The format identifier '%i' is also used for _____ data type. 1
(a) Char (b) Int (c) Float (d) Double
- ii. Which of the following is not a valid variable name declaration? 1
(a) int _a3; (b) int a_3; (c) int 3_a; (d) int _3a
- iii. What will be the output of the following C code? 1

```
#include <stdio.h>
void main() {
    static int x = 3;
    x++;
    if (x <= 5) {
        printf("hi");
        main();
    }
}
```

(a) Run time error (b) hi
(c) Infinite hi (d) hi hi
- iv. What will be the output of the following C code? 1

```
#include <stdio.h>
int main() {
    char *str = "hello, world";
    char *str1 = "hello, world";
    if (strcmp(str, str1))
        printf("equal");
    else
        printf("unequal");
}
```

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- (a) Equal (b) Unequal
(c) Compilation error (d) Depends on the compiler
- v. Comment on the following C statement. **1**
`const int *ptr;`
 (a) You cannot change the value pointed by ptr
 (b) You cannot change the pointer ptr itself
 (c) You May or may not change the value pointed by ptr
 (d) You can change the pointer as well as the value pointed by it
- vi. What will be the output of the following C code? **1**
`#include <stdio.h>`
`void main() {`
`int a[3] = { 1, 2, 3};`
`int *p = a;`
`printf("%p\t%p", p, (a);`
`}`
 (a) Same address is printed (b) Different address is printed
 (c) Compile time error (d) Nothing
- vii. Which operator connects the structure name to its member name? **1**
 (a) – (b) <- (c) . (d) Both (b) and (c)
- viii. What would be the size of the following union declaration? **1**
 (Assuming size of double = 8, size of int = 4, size of char = 1)
`#include <stdio.h>`
`union uTemp {`
`double a;`
`int b[10];`
`char c;`
`}u;`
 (a) 4 (b) 8 (c) 40 (d) 80
- ix. _____ is the preprocessor directive which is used to end the scope of #ifdef. **1**
 (a) #elif (b) #ifndef (c) #endif (d) #if
- x. What does argc and argv indicate in command-line arguments? **1**
 (Assuming: `int main(intargc, char *argv[])`)
 (a) Argument count, argument variable
 (b) Argument count, argument vector
 (c) Argument control, argument variable
 (d) Argument control, argument vector

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- Q.2 i. Name the different data types available in C Language. **2**
 ii. What is storage class? Explain types of storage classes with properties. **3**
 iii. Explain different types of operators available in C language with syntax and example. **5**
 OR iv. Discuss the input/output Functions in C Language. WAP to input marks of 5 subjects and print total marks and average marks **5**
- Q.3 i. What is Functions? Explain function declaration, calling and definition with syntax. **2**
 ii. What is Array? WAP to input numbers in array and print all the numbers in Sorted order. **8**
 OR iii. Discuss Strings with declaration and Initialization. WAP to input string and print its reverse. **8**
- Q.4 i. Describe Call by value and Call by reference with example. **3**
 ii. How array can be passed to function using pointer. WAP to print all the elements of array using function. **7**
 OR iii. Differentiate Array of pointers and Pointer to an Array with the help of program. **7**
- Q.5 i. What is union? Contrast memory allocation in structure and union with example. **4**
 ii. Discuss array of structure with syntax. WAP using array of structure to input details of 3 books and print that details. **6**
 OR iii. Write a program to add, subtract and multiply two complex numbers using structures to function. **6**
- Q.6 Attempt any two:
 i. Explain Command line arguments with syntax. WAP to swap two numbers using command line arguments. **5**
 ii. Enlist modes and Functions of file. Write a C program to print source code of same program. **5**
 iii. Write a C program to read numbers from a file and write even, odd and prime numbers to separate file. **5**

Marking Scheme
CA5CO01 Problem Solving and Programming

Q.1	i.	The format identifier '%i' is also used for _____ data type. (b) Int	1
	ii.	Which of the following is not a valid variable name declaration? (c) int 3_a;	1
	iii.	What will be the output of the following C code? (d) hi hi	1
	iv.	What will be the output of the following C code? (b) Unequal	1
	v.	Comment on the following C statement. const int *ptr; (a) You cannot change the value pointed by ptr	1
	vi.	What will be the output of the following C code? (a) Same address is printed	1
	vii.	Which operator connects the structure name to its member name? (c) .	1
	viii.	What would be the size of the following union declaration? (Assuming size of double = 8, size of int = 4, size of char = 1) (c) 40	1
	ix.	_____ is the preprocessor directive which is used to end the scope of #ifdef. (c) #endif	1
	x.	What does argc and argv indicate in command-line arguments? (Assuming: int main(intargc, char *argv[])) (b) Argument count, argument vector	1
Q.2	i.	Name the different data types available in C Language. 0.5 mark for each data type (0.5 mark * 4)	2
	ii.	For defining storage class For types of storage classes with properties.	3
	iii.	Types of operators available in C language with syntax and example. 1 mark for each operator	5
OR	iv.	Functions in C Language For program	5
Q.3	i.	Definition of Functions Function declaration, calling with syntax	2

OR	ii.	Array Program	3 marks 5 marks	8
	iii.	Strings Program	3 marks 5 marks	8
Q.4	i.	Call by value with example Call by reference with example	1.5 marks 1.5 marks	3
	ii.	How array can be passed to function using pointer Program	3 marks 4 marks	7
OR	iii.	Differentiate Array of pointers and Pointer to an Array 3.5 marks for each	(3.5 marks * 2)	7
Q.5	i.	Union Structure and union with example.	2 marks 2 marks	4
	ii.	Array of structure with syntax Program	2 marks 4 marks	6
	iii.	Program to add, subtract and multiply two complex numbers using structures to function. Stepwise marking		6
Q.6		Attempt any two:		
	i.	Command line arguments with syntax Program	2.5 marks 2.5 marks	5
	ii.	Modes and Functions of file C program to print source code of same program	2 marks 3 marks	5
	iii.	C program to read numbers from a file and write even, odd and prime numbers to separate file. Stepwise marking		5
