Total No. of Questions: 6 *Total No. of Printed Pages:3*

Enrollment No.....

Faculty of Science

End Sem (Odd) Examination Dec-2022

CA3CO01 Problem Solving & Programming

Programme: BCA/ BCA-MCA(Integrated) 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 symbol shown in the figure in flow chart represents- **1**

(a) Input and output (b) Processing
(c) Database (d) Connector

ii. What is the task of linker? **1**
(a) Combine all the pieces of the program
(b) Loading the program into the memory
(c) Both (a) & (b)
(d) None of these

iii. What is the output of following code? **1**

```
void main() {
  printf("%d",printf("Hello"));
}
```

(a) Hello with error (b) Hello 5
(c) Hello with warning (d) Error

iv. What is the output of this C code? **1**

```
void main() {
int x = 97;
int y = sizeof(x++);
printf("X is %d", x);
}
```

(a) X is 97 (b) X is 98 (c) X is 99 (d) Run time error

v. Every string is compulsorily ends with which symbol- **1**
(a) \O (b) /0 (c) \0 (d) /O

P.T.O.

vi. What is an array in C language? **1**
(a) A group of elements of same data type
(b) An array contains more than one element
(c) Array elements are stored in memory in continuous locations
(d) All of these

vii. What is the output of this C code? **1**

```
#include <stdio.h>
struct {
int k;
char c;
};
int main() {
struct p;
p.k = 10;
printf("%d\n", p.k);
}
```

(a) Compile time error (b) 10
(c) Undefined behaviour (d) Segmentation fault

viii. A union represents- **1**
(a) Memory screen (b) Virtual memory
(c) Memory storage management (d) None of these

ix. What is the significance of following code? **1**

```
void main() {
int a=10, *p, *q;
p=&a;
q=p;
}
```

(a) Pointer to Pointer
(b) Error
(c) Two pointers pointing to two different locations
(d) Two pointers pointing to same location

x. What is meant by 'a' in the following C operation? **1**

```
fp = fopen("Random.txt","a");
```

(a) Attach (b) Append (c) Apprehend (d) Add

Q.2 i. What is algorithm? What is the need of algorithm? **2**
ii. What is flowchart? Explain symbols of flowchart in single statement? **3**

iii. Explain C program development life cycle. **5**
OR iv. Differentiate between compiler and interpreter. **5**

Q.3 i. What do you mean by operator precedence and associativity? Explain by some example. **2**
ii. Explain switch control statement and its properties/rules. Write a program to perform all arithmetic operation at one screen till user choice. **8**
OR iii. Explain break, continue, goto and exit(0) statements with separate examples. **8**

Q.4 i. Explain strlen() and strcpy() function. **3**
ii. What do you mean by Function and its rules? Explain call by value and call by reference by program. **7**
OR iii. Write a program to read two matrices, add them and print the resultant matrix. **7**

Q.5 i. Explain structure and union in C. Compare structure and union with each other. **4**
ii. Write a C language program to define structure containing course_name, number_of_students and roll_number. Read 3 records and display it. **6**
OR iii. Declare a structure called "stud" having the elements roll, maths, phy, chem, eng, hindi (all integer), per (float) and grade (char). Accept the values of roll, maths, phy, chem, eng and hindi. For 5 students from the user, calculate the percentage and grade and print the data on the screen. **6**

Q.6 Attempt any two:
i. What is dynamic memory allocation? Explain by example. **5**
ii. What do you mean by command line argument? Explain by program. **5**
iii. Write a program for file handling and use following functions fopen(), fclose(), fgets(), fputs() and rewind(). **5**

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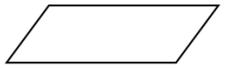
Marking Scheme
CA3CO01 Problem Solving & Programming

Q.1	i)	The symbol shown in the Figure in flow chart represents  (a) Input and output	**1**
	ii)	What is the task of linker : (a) Combine all the pieces of the program	**1**

	iii)	What is the output of following code :
		void main() {
		printf(“%d”,printf(“Hello”));
		}
		(b) Hello 5
			1

	iv)	What is the output of this C code?
		void main() {
		int x = 97;
		int y = sizeof(x++);
		printf("X is %d", x);
		}
		(a) X is 97
			1

	v)	Every string is compulsorily ends with which symbol : (c) \0	**1**
	vi)	What is an array in C language? (d) All of these	**1**
	vii)		

	viii)	What is the output of this C code?
		#include <stdio.h>
		struct {
		int k;
		char c;
		};
		int main() {
		struct p;
		p.k = 10;
		printf("%d\n", p.k);
		}
		(a) Compile time error
			1

	ix)	A union represents : (c) Memory storage management	**1**

	x)	What is the significance of following code :
		void main() {
		int a=10, *p, *q;
		p=&a;
		q=p;
		}
		(d) Two pointers pointing to same location
			1

	xi)	What is meant by ‘a’ in the following C operation? fp = fopen(“Random.txt”,“a”); (b) Append	**1**
Q.2	i.	Definition of Algorithm (1 marks) and Need of Algorithm (1 marks)	**2**
	ii.	Definition of Flowchart (1 marks) and explanation of each symbol in flowchart (2 marks)	**3**
	iii.	C Program Development Life Cycle (10 steps to create any program)	**5**
OR	iv.	5 or more than 5 differences between compiler and interpreter.	**5**
Q.3	i.	Operator Precedence with example (1 marks) and Operator Associativity with example (1 marks)	
	ii.	Question from Unit-II	**8**
OR	iii.	What is Break statement (1 marks) and example (1 marks), What is continue statement (1 marks) and example (1 marks), what is goto statement (1 marks) and example (1 marks), what is exit(0) statement (1 marks) and example (1 marks)	**8**
Q.4	i.	strlen() (1.5 marks) and str() (1.5 marks) explain with program	**4**
	ii.	What do you mean by Function (1 marks), Rules (2 marks), call by value (2 marks), call by reference (2 marks)	**6**
OR	iii.	Read two matrix (2 marks), add both (1.5 marks) and print (2 marks)	**6**
Q.5	i.	What is Structure (1 marks), Union(1 marks), Differences (2 marks)	**4**
	ii.	Declare structure (2 marks), Array of Structure (2 marks) and Display result (2 marks)	**6**
OR	iii.	Declare structure (2 marks), Array of Structure (2 marks) and Display result (2 marks)	**6**

Q.6		Attempt any two:	
	i.	DMA (1 marks), malloc() (1 marks), calloc() (1 marks), realloc() (1 marks), free() (1 marks)	**5**
	ii.	What is Command Line Argument (2 marks) and Program (1.5 marks)	**5**
	iii.	Program with fopen () (1 marks), fclose () (1 marks), fgets() (1 marks), fputs () (1 marks) and fclose() (1 marks)	**5**

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