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

Enrollment No.....

Faculty of Science

End Sem (Odd) Examination Dec-2018

CA3CO01 Problem Solving and Programming

Programme: BCA 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. Collection of step by step instructions written in English like language is known as **1**

(a) Psudo code (b) Algorithm (c) Comment (d) Program

ii. In flowchart which symbol is used for checking condition? **1**

(a) Rectangle (b) Ellipse (c) Circle (d) Diamond Box

iii. Which operator is used to get quotient? **1**

(a) / (b) % (c) & (d) None of these

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

```
#include <stdio.h>
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. What is the output of this C code? **1**

```
#include <stdio.h>
void f1();
int main() {
   f1();
   return 0;
}
void f1() {
   printf("2 ");
}
```

(a) Compile time error (b) 2

(c) Depends on the compiler (d) Depends on the standard

P.T.O.

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

```
#include <stdio.h>
int main() {
   char *str = "hello, world\n";
   printf("%d", strlen(str));
}
```

(a) Compilation error (b) Undefined behaviour
(c) 13 (d) 11

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

```
#include <stdio.h>
struct student {
   char *name;
};
void main() {
   struct student s, m;
   s.name = "st";
   m = s;
   printf("%s%s", s.name, m.name);
}
```

(a) Compile time error (b) Nothing
(c) Junk values (d) st st

viii. 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

ix. FILE is of type _____ **1**
(a) int type (b) char * type
(c) struct type (d) None of these

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

```
#include <stdio.h>
void main() {
   int k = 5;
   int *p = &k;
   int **m  = &p;
   printf("%d%d%d\n", k, *p, **p);
}
```

(a) 5 5 5 (b) 5 5 junk value
(c) 5 junk junk (d) Compile time error

Q.2 i. Define Compiler. **2**
ii. Differentiate between linker and loader. **3**
iii. What is an algorithm? Draw a Flowchart to check weather a given number is palindrome or not? **5**
OR iv. Write a short note on types of Programming Language. **5**

Q.3 i. Explain the concept of Operator precedence? **2**
ii. Differentiate between relational and logical operators used in C? Write a program to check weather a given number is prime or not. **8**
OR iii. Explain Switch Case Statement. Use suitable example. What will happen if break is not used in switch case block? **8**

Q.4 i. Write a short note on: strcmp. **3**
ii. What is 1D Array illustrate with the example? Also discuss its applications. **7**
OR iii. What is the difference between call by value and call by reference? Write a function to swap the values of two variables. **7**

Q.5 i. Describe the uses of union. **4**
ii. Explain Nested structure. Use suitable example. **6**
OR iii. Distinguish between structure and union. Explain with suitable example. **6**

Q.6 Attempt any two:
i. Explain the dynamic memory allocation with example. **5**
ii. Write a short note on Pointer to array with example **5**
iii. What role do the fseek() and fopen play in File handling? **5**

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Marking Scheme

CA3CO01 Problem Solving and Programming

Q.1 i. Collection of step by step instructions written in English like language is known as **1**

(b) Algorithm

ii. In flowchart which symbol is used for checking condition? **1**

(d) Diamond Box

iii. Which operator is used to get quotient? **1**

(a) /

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

```
#include <stdio.h>
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. What is the output of this C code? **1**

```
#include <stdio.h>
void f1();
int main() {
   f1();
   return 0;
}
void f1() {
   printf("2 ");
}
```

(b) 2

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

```
#include <stdio.h>
int main() {
   char *str = "hello, world\n";
   printf("%d", strlen(str));
}
```

(c) 13

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

```
#include <stdio.h>
struct student {
   char *name;
};
void main() {
   struct student s, m;
   s.name = "st";
   m = s;
   printf("%s%s", s.name, m.name);
}
```

(d) st st

viii. 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

ix. FILE is of type _____ **1**

(c) struct type

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

```
#include <stdio.h>
void main() {
   int k = 5;
   int *p = &k;
   int **m  = &p;
   printf("%d%d%d\n", k, *p, **p);
}
```

(d) Compile time error

Q.2 i. Definition of Compiler. **2**

ii. Difference b/w linker and loader. **3**

Linker	1.5 marks	
Loader	1.5 marks	

iii. Algorithm Definition 1 mark **5**
Flowchart 4 marks

OR iv. Types of Programming Language **5**

		1 mark for each type	(1 mark * 5)	
Q.3	i.	Definition of Operator precedence	2 marks	**2**
	ii.	Difference b/w relational and logical operators used in C	2 marks	**8**
		Program	5 marks	
OR	iii.	Switch Case Statement.	5 marks	**8**
		If break is not used in switch case block	3 marks	
Q.4	i.	Description of strcmp.	2 marks	**3**
		Example	1 mark	
	ii.	1D Array		**7**
		Definition	2 marks	
		Example	2 marks	
		Application	3 marks	
OR	iii.	Difference b/w call by value and call by reference	2 marks	**7**
		Function to swap the values of two variables	5 marks	
Q.5	i.	Uses of union.		**4**
	ii.	Nested structure		**6**
		Definition	2 marks	
		Syntax	1 mark	
		Example and Explanation	3 marks	
OR	iii.	Difference b/w structure and union	(1 mark * 6)	**6**
Q.6		Attempt any two:		
	i.	Dynamic memory allocation		**5**
		Explanation	3 marks	
		Example	2 marks	
	ii.	Pointer to array with example		**5**
		Explanation	3 marks	
		Example	2 marks	
	iii.	fseek() and fopen play in File handling		**5**
		fssek()	2.5 marks	
		fopen()	2.5 marks	

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