



National Institute of Technology
Tiruchirappalli, Tamil Nadu – 620 015

106621002

Principles of Programming Languages – Cycle Test II Date: 31.10.2022

Duration: 1 Hour

Time: 03:00 – 04:00 PM

Total Marks: 20

1. For the following program:

(2 M + 1 M + 6 M + 1 M)

- (i) Draw the basic Activation Record Instance
- (ii) Write the order in which the function calls are made
- (iii) Draw the complete Activation Record Instance [*Hint: Mark the current locations of EP and SP as well*]
- (iv) Write the final output of the program

```
int div(int j, int k)
{
    int w = j / k;
    return w;
}
int sub(int g, int h, int i)
{
    int x = div(g, h);
    return x;
}
```

```
int add(int d, int e, int f)
{
    int z = sub(d, e, f);
    return d;
}
void main()
{
    int a = 5, b = 6, c = 8, x;
    x = add(a, b, c);
    printf("%d", x);
}
```

2. Draw the descriptor table of multi-dimensional array.

(2 M)

3. What is the output of the following statement in C-Program?

(1 M)

`printf();`

(a) Prints Nothing

(b) NULL

(c) ""

(d) Error

4. What is the size of the following two datatypes? (Consider, int = 2 Bytes; char = 1 Byte; float = 4 Bytes) (2 M)

<pre> struct { int a; char b; float c; } </pre>	<pre> union { int a; char b; float c; } </pre>
---	--

- (a) 7 Bytes, 2 Bytes (b) 4 Bytes, 7 Bytes (c) 7 Bytes, 4 Bytes (d) None of the above
5. If the memory address to which a pointer (P₁) is pointing to has been deallocated, then the pointer (P₁) will be called as (1 M)
- (a) NULL Pointer (b) Dangling Pointer (c) Missing Pointer (d) Empty Pointer
6. What is the output of the following statement? (Consider, list[0] is at address 1000 and the size of int is 2 Bytes) (2 M)

```

int list[5] = {1, 2, 3, 4, 5};
int *ptr = list;
printf("%d, ", *(ptr+2));
*ptr++;
printf("%d", *ptr);
        
```

- (a) 3, 4 (b) 2, 4 (c) 2, 3 (d) 3, 2
7. What is the final value of p1, if the functional parameters are evaluated from R→L? (2M)

```

void sub(out int a, out int b)
{
    a = 17;
    b = 35;
}
int p1 = 5;
int p2 = 10;
f.sub(out p1, out p1);
        
```

- (a) 5 (b) 35 (c) 17 (d) None of the above

----- END -----