Indian Institute of Technology Kharagpur
Course: MA41021/MA60001 Programing Languages
Autumn Semester 2020-21
Time : 45 minutes
Class Test - 2

Declaration:

- **Each question carries 2 marks.**

- **NO query will be entertained during the examination.**

- **There may be multiple options correct for a problem. Full marks is given only when all the correct options are identified.**

- **Once a problem is passed, it will not appear in your screen again and hence if a problem appears in your screen then identify the correct option and then go for the next problem.**

1. Which ones of the following define a *structure* in C

    (a) struct $\{$int $x;\}$
    (b) struct namestruct $\{$int $x;\}$
    (c) struct namestruct int $x;$
    (d) struct namestruct $\{$int $x;\};$

    ANS. d)

2. Which ones of the following accesses a variable (var) in structure $*p$?

    (a) $p->$var;
    (b) p.var;
    (c) $*p$.var;
    (d) $*p->$var;

    where the is no gap in between $-$ and $>$ in $->$
    ANS. a)

3. The output of the program
    main ( )
    {
    int *j = (int*)malloc(4 * sizeof(int));
    *j = 15;
    free(j);
    printf("%d"; *j);

    }
    is

(a) 15

(b) Some garbage value

(c) ~~Nothing prints~~ none of the above

ANS. ~~b)~~ c)

4. Consider the program

main( )

{

int *a[5];

a = (int *) malloc(sizeof(int) *5);

free(a);

}

Then which of following are true?

(a) error happens since the program is not able to allocate memory

(b) error happens since address of allocated memory can not be stored

(c) error happens since the program is not able to free memory

ANS: b)

5. The statement "The function malloc( ) returns number of bytes it has allocated when it allocates memory successfully" is

(a) True

(b) False

ANS: b)

6. Which one(s) can not be member(s) of a structure?

(a) Function

(b) Array

(c) Structure

(d) None of the above

ANS: a)

7. The size of the structure given by

struct example{

int a;

char b;

float c;

};

is

(a) 8

(b) 9

(c) 12

(d) 24

2

ANS: c)

8. The incorrect syntaxes while passing by reference a member of a structure in a function (func) is

   (a) func($\&s.a$);
   (b) func($\&(s).a$);
   (c) func($\&(s.a)$);
   (d) None of the above

   ANS: d)

9. Consider the program

$$X := 1; \textbf{while } (X == 0) \textbf{ do } X := (X - 1)$$

   Then which ones of the following are true?

   (a) The computation of the program is divergent
   (b) The computation of the program is terminating and the final state is $\sigma[X \leftarrow 1]$
   (c) The computation of the program is terminating and the final state is $\sigma[X \leftarrow 0]$
   (d) None of the above

   ANS. b)

10. The number of bytes that the program
    main( )
    { int *ptr;
    ptr = (int*)malloc(sizeof(int)*4);
    ptr = realloc(ptr,sizeof(int)*2);
    }
    allocates for the pointer "ptr" is

    (a) 2
    (b) 4
    (c) 8
    (d) 16

    ANS: c)