SHIV NADAR

INSTITUTION OF EMINENCE DEEMED TO BE
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DELHI NCR

TEST ANSWER BOOK

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Roll No....2410110027.................... Major..........BTech CSE....................

Course Code........CSD101.................... Course Title....Introduction to Computing Programming

Date........1/10/24.................... No. of Continuation Sheets Used......0....................

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SECTION-A

Ans 1) Identifier is a name given to a function / variable or any user defined item in the program.

Rule 1: It cannot have spaces in between.

Eg. new num   newnum
     X   ✓

Rule 2: It can only start with an alphabet and or underscore and not with a digit.

Eg. 9alpha   _alpha   OR   alpha_
     X   ✓   ✓

Ans 2) here use rules of precedence.

$$7\%7 + 7/7 - 7^*7 >> 1$$
$$0 + 1 - 49 >> 1$$
$$-48 >> 1$$

$a >> 1$ is given by
$$a = a/(2^1)$$

$$= -48/(2^1)$$
$$= -24$$
     Answer

SECTION-A

Ans 1) Identifier is a name given to a function / variable or any user defined item in the program.

Rule 1: It cannot have spaces in between.

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Eg.   9alpha   _alpha   OR   alpha_
        ✗   ✓   ✓
                              ③

Ans 2) We use rules of precedence.

$$7\%7 + 7/7 - 7^*7 >> 1$$
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$a >> 1$ is given by $a = a/(2^1)$

$$= \quad -48/(2^1)$$
$$= \quad -24$$

Answer

Ans 3) <u>3.1</u>

(Ans) (B) b, a ✓ +2

This is because a++ is post increment.

$$\therefore \quad b = 6$$

and a = a++ = 7

<u>3.2</u>

(Ans) (C) i = 0; i < 4; i++ +2

The code given is for finding the minimum number in an array.
The minimum number in this array is 8, whereas we get the output as 10, which means the loop does not iterate through the complete array, it only goes till index 3.

Ans 4) <s>i≠0</s> 4.1

Dry run :-

i = 0   count = 0

i = 1   count = 1 = (0+1)

i = 2   count = 3 = (1+2)

i = 3   count = 6 = (3+3) $\therefore$ output is (A) 10

i = 4   count = 10 = (6+4)

4.2

~~Dry Run~~ :- $c = a + b = 6$

Here, the function we have to evaluate is $foo(6, 3, 3)$;

It is equivalent to $foo(int *x, int *y, int *z)$

$$a = a + 1; \qquad \Rightarrow a = 4$$
$$a = c + c = \text{~~x+y+z~~} \qquad \Rightarrow a = 6 + 6 = 12$$

$$(Ans) \ (B) \ 12$$

4.3

$32 \ bit = 4 \ byte$

sizeof $arr = 4 \times 5 = 20$

$\therefore \ arr = 20$
$arr + 1 = 21$
$arr + 3 = 23$

$\therefore$ Output will be $\quad 20 \quad 21 \quad 23$

Ans 5) find (a,b) will return 0 if b > a and return a-b is a > b.

Case I: $\underline{b > a}$ (returns 0)

find (a, 0)

Here a is non negative (can be 0 also)

if $\underline{a = 0}$ returns 0 and if $\underline{a > 0}$ it returns $\underline{a}$

$\underbrace{\hspace{3cm}}$

$(a \not< 0)$

$0 - 0 = 0$

Case II: $\underline{a > b}$ (returns a-b)

find (a, a-b)

Here, $a > a-b$ ∴ it will return $a - (a-b) = \underline{b}$

∴ the function returns (D) minimum of a, b.

Ans 6) (C) and (D) correctly satisfy the flow chart.

in (C), acc. to the flow chart if c > d is false then it should print b = 2, and condition given in code is if c <= d (implies) then it prints b = 2 which means the same thing.

in (D), all conditions of loop are similar to that given in the flow chart.

SECTION-B

Ans)

```
                    function name                    function header
    int addition (int num1, int num2) {
    return                                              function definition
    -type       parameters
        int sum = num1 + num2;           function
        return sum;                      body
    }
```

```
int main () {
int var1;
int var2;
scanf ("%d", &var1);
scanf ("%d", &var2);        arguments
int ans = addition (var1, var2);        ← function call
printf ("The answer is %d", ans);

}
```

In this execution of code, first value of var1 & var2 is taken and then function addition is called with var1 and var2 as arguments.

As soon as the function is called, the compiler reads the function definition and returns the value (here, 'sum') and stores it in a variable 'ans' and prints it.

```c
Ans2)  int main () {
       int n, id, quan;
       int sum = 0;
       inv_list [5][2] = { {3,10}, {5, 30}, {9,12}, {11,15}, {15,80} };

       printf("Enter the no. of bought items: ");
       scanf("%d", &n);

       for (int i = 0; i < n; i++) {
       printf("Enter item id: ");
       scanf("%d", &id);
       printf("Enter item quantity: ");
       scanf("%d", &quan);

       for (int j = 0; j < 5; j++) {

          if (id == inv_list[j][0]) {
             sum = sum + (quan * inv_list[j][1]);
          }
       }
       }

       printf("Total shopping cost is %d", sum);

       }
```

+8

```
Ans2) int main () {

    int rows = 4;


    for (int i=0; i< rows; i++){

        for (int j=0; j < i+1 ; j++){
        printf ("*");
        }

        for (int k=0; k < rows-(2*i)+1 ; k++)
        for (int k=0; k < 2* (rows-i -1) ; k++) {
        printf (" ");
        }

        for (int l= 0; l< i+1 ; l++) {
        printf (" * ");

        }

    }


    for (int m=rows-1 ; m<=0 ; m--) {
        for (int n=0; n< m+1 ; n++) {
        printf ("*");
        }

        for (int p= 0; p< 2* (rows -m -1); p++) {
        printf (" ");
        }

        for (int q =0; q < m+1 ; q++) {
        printf (" * ");
        }

    }

}
```