Compiler

For Next Five Question

Consider the following C program:

```
int i, b[5];
void q (int x)
{
    i++;
    x++;
}
void main()
{
    i=1;
    b[1]=3;
    b[2]=4;
    q(b[i]);
    printf("%d \n", b[i]);
}
```

Q1.	What value will be printed assuming that C uses the following parameter passing mechanisms is "Pass by value"?

(A) 3   (B) 4   (C) 5   (D)none

1) Answer B

pass by value

in main i = 1   // i is gloebal

and b[5] is gloebal

```
 0  1  2  3  4
[  | 3| 4|  |  ]
```

calling q(b[1])

Now in q , x = 3

         i++   // this makes i = 2

         x++ , x = 4

return to main

    printf b[2] = 4   // 4 will be printed

Q2.	What value will be printed assuming that C uses the following parameter passing

mechanisms is "Pass by reference"?

(A) 3   (B) 4   (C) 5   (D)none

2) Answer B

pass by reference

global i and b[5]

in main $i = 1$, [| 3 | 4 | |] 0 1 2 3 4

calling q (b[i])

in q , x points to b[i]   // call by reference

$i++$ // $i = 2$

$x++$ // $x = b[i] = 4$

return to main

print (b[i]) = b[2] = 4

Q3. What value will be printed assuming that C uses the following parameter passing mechanisms is "Pass by value result"?

(A) 3   (B) 4   (C) 5   (D)none

3) Answer B

pass by value result

global i and b[5]
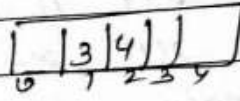
in main , $i = 1$, [| 3 | 4 | |] 0 1 2 3 4

calling q (b[i])

in q , $x = b[1] = 3$
$i++, \quad d = 2$
$x++ \Rightarrow x = 4$
As it is call by value result, $b[1] = x$
$\therefore b[1] = 4$
return to main
print $(b[1]) = 4$

Q4.	What value will be printed assuming that C uses the following parameter passing mechanisms is "Pass by name"?
	(A) 3 (B) 4 (C) 5 (D)none

4) Answer C

global $i=0$ and b[5]

in main, $i=1$, | |3|4| | | |
              0 1 2 3 4

calling q(b[i]), as this is call by name

thus q(b[i]) is replaced with code

```
void main()
{   i=1;
    b[i]=3;    b[2]=4;
    i++;
    b[i]++;
    printf("%d \n", b[i]);
}
```

main, $i=1$, | | |3|4| | | → b[5]
             0 1 2 3 4

$i++ \ || \ i=2$

$b[2]++ \ || \ b[2] = 5$

∴ print 5

Q5. What value will be printed assuming that C uses the following parameter passing mechanisms is "Pass by need"?

(A) 3   (B) 4

(C) 5   (D) none

5) Answer B

call by need

global i, b[5]

In main   I=1 , and b[5] =

		3	4		
0	1	2	3	4	

call q(b[i])

in q,   i++ || i = 2

as we need x, x++   ∴ x=b[1] ⊚
         ↓
         in

x= ⊕3 , New x++ => x= ⊕4

return to main

print 4

Q6.

[MSQ]

Consider the following code:

```
int              a[]=
{10,20,30,40}
int i = 0;
foo(int x){
print x;
x = x+1;
i = i+1;
print x;
}
void main(){
foo (a[i])
}
```
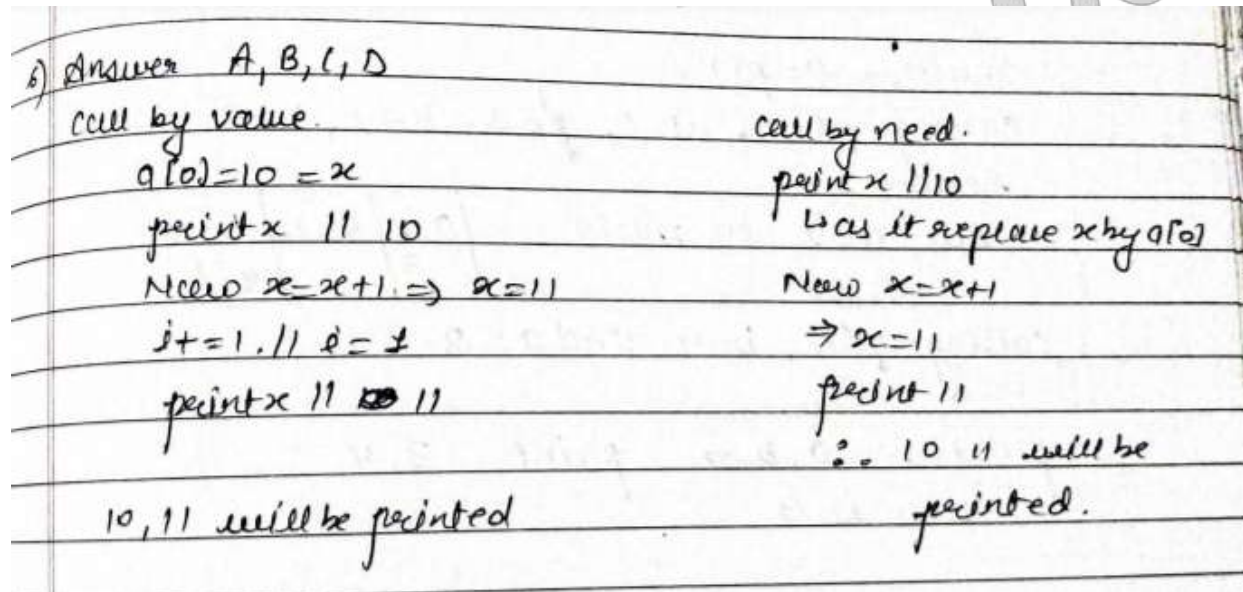
Which of the following statement is/are true?

(A) If parameter passing mechanism is "call by reference", then the output of the given code: 10, 11.

(B) If parameter passing mechanism is "call by name", then the output of the given code: 10, 11.

(C) If parameter passing mechanism is "call by need", then the output of the given code: 10, 11.

(D) If parameter passing mechanism is "call by value", then the output of the given code: 10, 11.

6) Answer A, B, C, D

call by value.

    a[0]=10 = x

    print x   // 10

    Ncero x=x+1. ⇒ x=11

    j+=1. // i=1

    print x // 11

10, 11 will be printed

call by need.

    print x //10

    ⤷ as it replace x by a[0]

    New x=x+1

    ⇒ x=11

    print 11

    ∴ 10 11 will be printed.

Q7. **[MSQ]**

Consider the following code

```
int n = 1;
void display (int x){
print  x + n;
}
void increment(){
n = n + 2;
print n ;
}
void main(){
int n =200;
display(7);
n = 50;
increment();
print n;
}
```

Which of the following statement is/are true?

(A) If the Static Scoping is used then printed output is: **8 52 50**