

# CS & IT ENGINEERING

Programming in C

**Arrays and Pointer**

**DPP 01** Discussion Notes




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## TOPICS TO BE COVERED



**01 Question**

**02 Discussion**

Q.1

Which of the following declarations are **INVALID**?

**[MSQ]**



A.

`int b[][4];`

*Invalid*

B.

`int b[];`

*Invalid*

C.

`int b[2][][2]={1,2,3,4};`

*Invalid*

D.

`int b[][2][2]={1,2,3,4};`

*✓ valid*

*A, B, C*



Q.2

[MCQ]



Consider the following two statements:

P: `int a[3]={1, 2, 3};`

`printf("%d", *a++);`

Invalid  
Incorrect

Invalid  
 $a++$ ,  $--a$

Q: `int a[3]={1, 2, 3};`

*int \**

`p=a;`

`printf("%d", *p++);`

Correct

Which of the following statements is/are CORRECT?

A.

P only.

☒ B.

Q only.

C.

Both P and Q.

D.

Neither P nor Q.



Q.3

Consider the following program:

```
#include<stdio.h>
```

```
int main(void)
```

```
{
```

```
    int a[5]={5, 10, 15};
```

```
    printf("%d", 1[a]);
```

```
    return 0;
```

```
}
```

$1[a] \Rightarrow a[1]$

The output is-

A.

5

~~B.~~

10

C.

Garbage value

D.

Compilation error

5	10	15	0	0
---	----	----	---	---

$a[0] \ a[1] \ a[2] \ a[3] \ a[4]$

[MCQ]



$$a[i] \equiv *(a+i) \equiv *(i+a) \\ \equiv i[a]$$

Q.4

Consider the following program:

[MCQ]



```
#include<stdio.h>
```

```
int main(void)
```

```
{
```

```
    int 5[a]={5, 10, 15};
```

```
    printf("%d", 1[a]);
```

```
    return 0;
```

```
}
```

The output is-

A.

5

B.

10

C.

Garbage value

☒ D.

Compilation error

*Invalid/Error*

*int 5[a];  
int*



**Q.5**

Consider the following program:

#include&lt;stdio.h&gt;

int main(void){

int a[5]={5, 10, 15, 20, 25};

1000 ← printf("%u", a);

20 ← printf("%u", \*(a+3));

1004 ← printf("%u", a+2);

21 ← printf("%u", \*(a+2)+6);

25 ← printf("%u", \*(a+\*(a+1)-6));

return 0;

}

Assuming the base address of the array to be 1000 and integer size as two bytes  
the output is-**A.**

1000 20 1004 21 25

**B.**

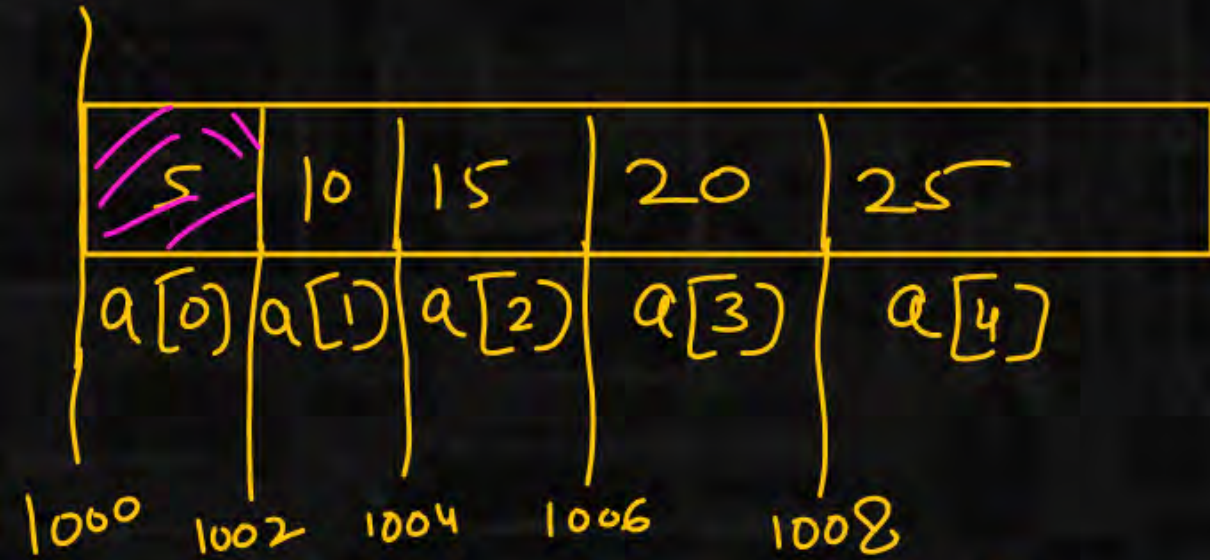
5 20 15 21 25

**C.**

1000 20 1002 21 24

**D.**

Compilation error

**[MCQ]**add. of first element  $\Rightarrow \&a[0]$  $\ast(a+3) \equiv a[3]$  $a+2 \equiv \&a[0] + 2$  $\ast(a+2)+6 \Rightarrow a[2]+6$   
 $15+6=21$ Add  $\Rightarrow \&a[0] + 2 \times 2$  $\Rightarrow 1000 + 4 \Rightarrow 1004$  $\ast(a + \ast(a+1)-6) \Rightarrow \&a[2]$  $\ast(a + a[1]-6) \Rightarrow a[4]$  $\ast(a+10-6) \Rightarrow \ast(a+4)$



**Q.6**

Consider the following program:

```
#include<stdio.h>
int main(void)
```

```
{
```

```
    int a[5]={5, 10, 15, 20, 25};
```

```
    printf("%u\t", *(1+a));
```

```
    printf("%u\t", &a+1);
```

```
    return 0;
```

```
}
```

Assuming the base address of the array to be 1000 and integer size as four bytes the output is-

A.

1004 1020

B.

10 1016

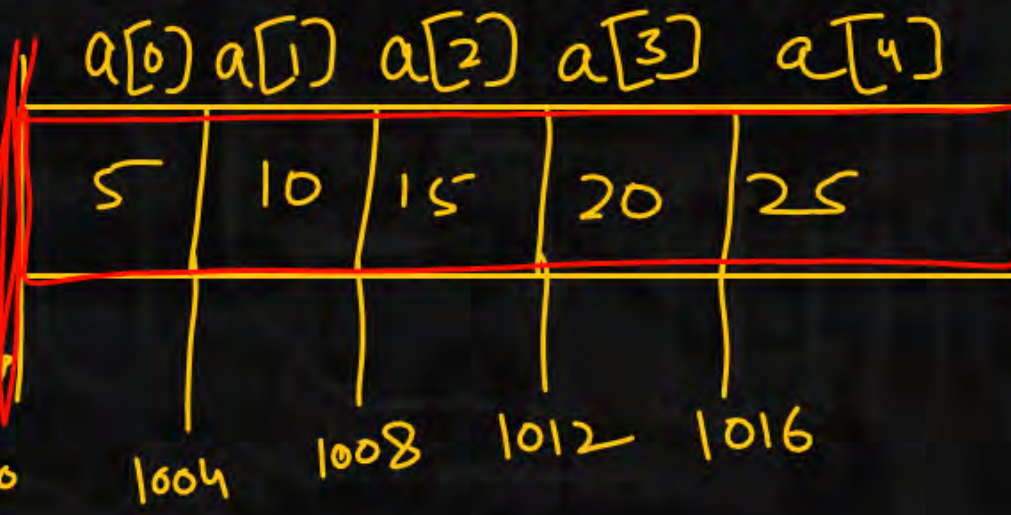
☒ C.

10 1020

D.

1004 1016

[MCQ]



$\&a + 1 \Rightarrow \&a + 1 \times 20$   
which add.  $\Rightarrow$  Entire array

$= 1000 + 20$   
 $= 1020$



