



**INDIAN INSTITUTE OF TECHNOLOGY MANDI**  
**MANDI - 175 001 (H.P.), INDIA**

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**MA-514 Computer Programming**  
**Tutorial-9**

**Instructor:** Dr. Rajendra K. Ray  
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1. What is the difference between the 5's in these two expressions? (Select the correct answer)

```
int num[ 5 ] ;  
num[ 5 ] = 11 ;
```

- (a) First is particular element, second is type.
  - (b) First is array size, second is particular element.
  - (c) First is particular element, second is array size.
  - (d) Both specify array size.
2. Write the differences between
- (a) " = " and " == " operator ,
  - (b) ++a and a++
3. What will be the output of the following C codes? Explain the logic for all.

```
(a) # include < stdio.h >  
# define AND &&  
# define ARANGE ( a > 25 AND a < 50 )
```

```
int main( )  
{  
int a = 30;  
if ( ARANGE )  
printf ( "within range" ) ;  
else  
printf ( "out of range" ) ;  
return 0 ;  
}
```

```
(b) #include <stdio.h>
#define AREA(x) ( 3.14 * x * x )
int main( )
{
float r1 = 6.25, r2 = 2.5, a ;
a = AREA ( r1 ) ;
printf ( "Area of circle = %f \n", a ) ;
a = AREA ( r2 ) ;
printf ( "Area of circle = %f \n", a ) ;
return 0 ;
}
```

4. State whether the following statements are True or False:

- (a) The array `int num[26]` has twenty-six elements.
- (b) The expression `num[1]` designates the first element in the array.
- (c) It is necessary to initialize the array at the time of declaration.
- (d) The expression `num[27]` designates the twenty-eighth element in the array.

5. What will be the output of the following C codes? Explain the logic for all.

```
(a) #include <stdio.h>
int main( )
{
int arr [ ] = { 10, 20, 30, 45, 67, 56, 74 } ;
int *i, *j ;
i = &arr [1];
j = &arr [5] ;
printf ( "%d %d \n", j - i, *j - *i ) ;
return 0 ;
}
```

```
(b) #include <stdio.h>
int main( )
{
int array [26], i ;
for ( i = 0 ; i <= 25 ; i++ )
{
array [ i ] = 'A' + i ;
printf ( "%d %c \n", array[ i ], array[ i ] ) ;
}
```

```

return 0 ;
}

```

6. Point out the errors, if any, in the following program segment, correct it and then write the output.

```

#include < stdio.h >
int main( )
{
int size ;
scanf ( "%d", &size ) ;
int arr[ size ];
for ( i = 1 ; i <= size ; i++ )
{
scanf ( "%d", &arr[ i ] ) ;
printf ( "%d\ n", arr[ i ] ) ;
}
return 0 ;
}

```

7. Predict output of the following program:

```

int main()
{
int a[][] = {{1,2},{3,4}};
int i, j;
for (i = 0; i < 2; i++)
for (j = 0; j < 2; j++)
printf("%d ", a[i][j]);
return 0;
}

```

(A) 1 2 3 4

(B) Compiler Error in line " int a[][] = {{1,2},{3,4}};"

(C) 4 garbage values

(D) 4 3 2 1

8. What will be the output of the C program?

```
#include <stdio.h>
#define arr[5] {1, 2, 3, 4, 5}
int main()
{
printf("%d", arr[1]);
return 0;
}
```

A. 1

B. 2

C. Compilation error

D. Runtime error

