Algorithm Development and Programming Fundamentals
MCA SEM-1

Problem Solving - II

[A] What would be the output/ error of the following programs:

<table>
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<td>1</td>
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```c
#include <stdio.h>
void main( ) {
int i = 65 ;
char j = 'A' ;
if ( i == j )
printf ( "Hello!!!" ) ;
else
printf( "Welcome!!!" ) ;
}
```

</td>
<td>2</td>
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```c
#include <stdio.h>
void main( ) {
int x = 15 ;
printf ( "\n%d %d %d", x != 15, x =
20, x < 30 ) ;
}
```

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<td>OUTPUT:_____</td>
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```c
#include <stdio.h>
void main( ) {
int i = 4, z = 12 ;
if ( i = 5 || z > 50 )
printf ( "\n Hello!!!" ) ;
else
printf ( "\nBye !!!" ) ;
}
```

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<td>4</td>
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```c
#include <stdio.h>
void main( ) {
int i = 4, j = -1, k = 0, w, x, y, z ;
w = i || j || k ;
x = i && j && k ;
y = i || j && k ;
z = i && j || k ;
printf ( "\nw = %d x = %d y = %d z =
%d", w, x, y, z ) ;
}
```

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5	```c
	#include <stdio.h>
	void main( ) {
	int i = 4, j = -1, k = 0, y, z ;
	y = i + 5 && j + 1 || k + 2 ;
	z = i + 5 || j + 1 && k + 2 ;
	printf ("\ny = %d z = %d", y, z) ;
	}
	``
		6	```c
			#include <stdio.h>
			void main( ) {
			int i = -3, j = 3 ;
			if (!i + !j * 1)
			printf ("\nHello!!!") ;
			else
			printf ("\nWelcome!!!") ;
			}
			``

	OUTPUT:_____		**OUTPUT:**_____

7	```c
	#include <stdio.h>
	void main( ) {
	int i = -1, j = 1, k ,l ;
	k = i && j ;
	l = i || j ;
	printf ("%d %d", I, j) ;
	}
	``
		8	```c
			#include <stdio.h>
			void main( ) {
			int i = -4, j, num ;
			j = (num < 0 ? 0 : num * num) ;
			printf ("\n%d", j) ;
			}
			``

	OUTPUT:_____		**OUTPUT:**_____

9	10

```c
#include <stdio.h>

int main()
 {
 int x, y, z;
 x = 2 + 3 - 4 + 5 - (6 - 7);
 y = 2 * 33 + 4 * (5 - 6);
 z = 2 * 3 * 4 / 15 % 13;
 x = 2 * 3 * 4 / (15 % 13);
 y = 2 * 3 * (4 / 15 % 13);
 z = 2 + 33 % 5 / 4;
 x = 2 + 33 % - 5 /4;
 y = 2 - 33 % - 5 /- 4;
 z =-2*-3/-4%-5;
 x =50 % (5 * (16 % 12 * (17/3)));
 Y=-2*-3%-4 /-5-6+-7;
 z = 8 /4 / 2*2*4*8 %13 % 7 % 3;
 printf("x=%d \t y=%d \t z=%d\n",x,y,z);
 return 0;
 }
```

```c
#include <stdio.h>

int main( )
 {
 int x = 3,y = 5,z = 7,w;
 w = x % y + y % x - z % x - x % z;
 printf("%d \n", w);
 w = x / z + y / z + (x + y) / z;
 printf("%d\n", w);
 w = x / z * y / z + x * y / z;
 printf("%d\n", w);
 w = x % y % z + z % y % (y % x);
 printf("%d\n", w);
 w = z / y / y / x + z / y / (y / x);
 printf("%d\n", w);
 return 0;
 }
```

OUTPUT:_____	**OUTPUT:**_____

11		12	

```
#include <stdio.h>

int main()
 {
 printf("%d\n", - 1 + 2 - 12 * -13 /
-4);

 printf("%d\n", - 1 % - 2 + 12 %
-13 % - 4);

 printf("%d \n",-4/2 - 12/4 - 13 %
-4);

 printf("%d\n", (- 1 + 2 - 12) * (-
13 / - 4));

 printf("%d\n", (- 1 % - 2 + 12) %(-
13 % - 4));

 printf("%d\n", (- 4 /2 - 12) / (4 -
13 % - 4));

 return 0;

 }
```

```
#include <stdio.h>

 int main()
 {
 int x = 3, y = 5, z = 7, w = 9;

 w += x;

 printf("w = %d\n", w);

 w -= y;

 printf("w = %d\n", w);

 x *= z;

 printf("x = %d\n", x);

 w += x + y - (z -= w);

 printf("w = %d, z = %d\n", w, z);

 w += x -= y %= z;

 printf("w = %d, x = %d, y = %d\n",
w, x, y);

 w *= x / (y += (z += y));

 printf("w = %d, y = %d, z = %d\n",
w, y, z);

 w /= 2 + (w %= (x += y - (z -= -w)));

 printf("w = %d, x = %d, z = %d\n",
w, x, z);

 return 0;

 }
```

OUTPUT:_____

OUTPUT:_____

13		14	
| | ```c
int main()
{
int x = 7, y = -7, z = 11,
w =- 11, S = 9, t = 10;
x += (y -= (z *= (w /= (s %= t))));
printf("x = %d, y = %d, z = %d, w = %d,
s = %d, t = %d\n", x, y, z, w, s, t);
t += s -= w *= z *= y %= x;
printf("x = %d, y %d, z = %d, w = %d,
s = %d, t = %d\n", x, y, z, w, s, t);
return 0;
}
``` | | ```c
#include <stdio.h>
int main()
{
double pi = 3.14159265;
printf("%15f\n", pi);
printf("%15.12f\n", pi);
printf("%-15.12f\n", pi);
printf("%15.4f\n", pi);
printf("%15.0f\n", pi);
printf("%15.3g\n", pi);
printf("%15g\n", pi);
printf("%15.4e\n", pi);
printf("%15e\n", pi);
return 0;
}
``` |
| | **OUTPUT:**_____ | | **OUTPUT:**_____ |

[B] Point out the errors and correct them, if any, in the following programs. Also write the output/error for the programs:

<table>
<tr>
<td>1</td>
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```
#include <stdio.h>

void main( ) {

float a = 12.25, b = 12.52 ;

if ( a = b )

printf ( "\na and b are equal" ) ;

else

printf ( "\na and b are not equal" ) ;

}
```
</td>
<td>2</td>
<td>

```
#include <stdio.h>

void main( ) {

if ( 'X' < 'x' )

    printf ( "\nascii value of X is
smaller than that of x" ) ;

}
```
</td>
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<td>OUTPUT:_____</td>
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<tr>
<td>3</td>
<td>

```
#include <stdio.h>

int main( ) {

int j = 10, k = 12 ;

if ( k >= j )

{

    {

            k = j ;

            j = k ;

    }

}

}
```
</td>
<td>4</td>
<td>

```
#include <stdio.h>

int main( ) {

int x = 30 , y = 40 ;

if ( x == y )

printf( "x is equal to y" ) ;

elseif ( x > y )

printf( "x is greater than y" ) ;

elseif ( x < y )

printf( "x is less than y" ) ;

}
```
</td>
</tr>
<tr>
<td></td>
<td>OUTPUT:_____</td>
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</table>

| 5 | ```c
#include <stdio.h>
void main( ) {
int a, b ;
scanf ( "%d %d",a, b ) ;
if ( a > b ) ;
printf ( "a is large" ) ;
else
printf ( "b is large" ) ;
}
``` | 6 | ```c
#include <stdio.h>
void main( ) {
int x = 10 ;
if x >= 2
printf ( "\n%d", x ) ;
}
``` |
|---|---|---|---|
| | **OUTPUT:**_____ | | **OUTPUT:**_____ |
| 7 | ```c
#include <stdio.h>
void main( )
{
int i = 2, j = 5 ;
if ( i == 2 && j == 5 )
printf ( "\nSolved at last" ) ;
}
``` | 8 | ```c
#include <stdio.h>
void main( ) {
int code, flag ;
if ( code == 1 & flag == 0 )
printf ( "\nThe eagle has landed" ) ;
}
``` |
| | **OUTPUT:**_____ | | **OUTPUT:**_____ |
| 9 | ```c
#include <stdio.h>
void main( ) {
int x = 10 , y = 20;
if ( x >= 2 and y <=50 )
printf ( "\n%d", x ) ;
}
``` | 10 | ```c
#include <stdio.h>
void main( ) {
int i = 10, j = 10 ;
if ( i && j == 10)
printf ( "\nHave a nice day!!!" ) ;
}
``` |
| | **OUTPUT:**_____ | | **OUTPUT:**_____ |

| 11 | ```c
#include <stdio.h>
void main( ) {
int ji = 65 ;
printf ( "\nji >= 65 ? %d : %c", ji ) ;
}
``` | 12 | ```c
#include <stdio.h>
void main( ) {
int i = 10, j ;
i >= 5 ? ( j = 10 ) : ( j = 15 ) ;
printf ( "\n%d %d", i, j ) ;
}
``` |
| --- | --- | --- | --- |
| | **OUTPUT:**_____ | | **OUTPUT:**_____ |
| 13 | ```c
#include <stdio.h>
#define print  "%sprintwonders "
int main()
{
   int a=1,b=2,c=3;
   printf(print,print);
   return 0;
}
``` | 14 | ```c
#include <stdio.h>
int main()
{
   int (x)=10;
   printf("x= %d",x);
   return 0;
}
``` |