

Student Name & Surname

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1. Which of the following variable names are illegal in C syntax?

- I) *integral* II) *integer* III) *_number1*
 IV) *1stMidterm* V) *Top_10*

- a) I and IV b) III and IV
 c) II and IV d) IV only
 e) III, IV, and V

2. What will be the value of *x* and *y* after execution of the following program segment?

```
int x=3, p=8;
float y = -3.1415;
x = 11 % x + 1 / x * 3.9 - (double) x ;
y = - (p / x) * (x / p);
```

- a) *x*: 3 *y*: -3.1415 b) *x*:1 *y*: -3.1415
 c) *x*: -1 *y*: 0.0 d) *x*: 0 *y*: 0.0
 e) *x*: 0.3 *y*: 1.0

3. What is the C equivalent of the following expression?

$$\log(\sin^2 x) + \frac{\cos^2 x}{1-x}$$

- a) $\lg(\sin x)^2 + \cos^2 x / (1-x)$;
 b) $\log(\sin(x*x)) + (\cos x * \cos x) / 1-x$;
 c) $\log \sin x*x + \cos x / 1-x$;
 d) $\log(\sin(x*x)) + \cos(x) * \cos(x) / (1-x)$;
 e) $\log \sin x^2 + \cos^2 x / 1-x$;

4. Given the variable declarations:

```
int x=5;
double y = 9.81, angle, result;
char City;
```

Give the choice which lists ALL of the following statements with invalid C syntax ?

- I) *x = pow(x, -1.0)*;
 II) *2*2 = 4*;
 III) *result =squareroot(x**2 - y**2)*;
 IV) *angle = atan(1.2)*;
 V) *City = 'Kiev'*;
 VI) *x = (double) x + (int) y*;

- a) II, III and V b) II and V
 c) III and IV d) II,III and VI
 e) I and II

5. The floating type constant 2.7182E-2 is equivalent to:

- a) -2.71822 b) -22.7182 c) 0.27182
 d) -0.271822 e) 0.027182

6. Which of the following definition is not valid?

- a) `long my__int;`
 b) `double _benim, Sayi;`
 c) `float Mynumber_is9;`
 d) `string mystring;`
 e) `char X98char;`

7. What could be the output of the following expression?

```
printf("%d%c%c", 'A','b',67);
```

- a) Ab67 b) 65b67 c) 65bc
 d) AbC e) 65bC

8. How can we get the output: `\\n\\t`?

- a) `printf("\\n\\t' ' ' ");`
 b) `printf("\\\\n\\t\\' \\' ' ");`
 c) `printf("\\n\\t' ' ' ");`
 d) `printf("\\\\n\\t\\' \\' ' ");`
 e) `printf("\\\\n\\t\\' \\' ' ");`

9. If you enter **97ca97** as input for the following expression what would be the output?

```
char a,b,c,d;
scanf("%d%c%c%c",&a,&b,&c,&d);
printf("%d%d%d%d",a,b,c,d);
```

- a) 97999997 b) a9997a c) 979997a
 d) 97ca97 e) 999799a

10. Which of the following is not a keyword in C?
 a) else b) do c) goto d) if e) then

11. The syntax of ? operator in C is;
 (CONDITION) ? TRUEVALUE : FALSEVALUE

What is the value of below statement?

```
(a < b) ? a : b ;
```

- a) minimum of a and b
 b) maximum of a and b
 c) a / b d) a + b e) Zero

12. What is the value of variable n after the execution of the following code?

```
int n = 2 ;
n = (double) n ;
```

- a) 2.0 b) 2 c) 4.0 d) 4 e) 0

13. How many lines of output will be produced by the following code?

```
int i = 0 ;
while ( 'l' > 4 )
printf ( " i %d \n ", ++i ) ;
printf ( "last: i%d \n", i ) ;
```

- a) 0 b) 1 c) 2 d) 3 e) infinite

14. What is the output of the following code fragment?

```
int k = 10 , t ;
t = - k - - ;
printf ( " %d %d " , k , t ) ;
```

- a) 9 10 b) 9 -10 c) -10 -11
d) 9 -11 e) -10 -10

15. Assuming a, b, and c are of type "int", what is the equivalent of the following if-statement:

```
if (!(a<5 && a%2==0) )
printf("%d",b);
else
printf("%d",c);
```

- a) if (a>=5 && a%2==1) printf("%d",c);
else printf("%d",b);
b) if (!(a<5) && !(a%2==0)) printf("%d",b);
else printf("%d",c);
c) if (a>=5 || a%2 !=0) printf("%d",c);
else printf("%d",b);
d) if (a>=5 || a%2 ==1) printf("%d",b);
else printf("%d",c);
e) if (a<5 || a%2==0) printf("%d",c);
else printf("%d",b);

16. What is the output of the following program segment?

```
x=2;
if (x>0)
{if (x>4) printf("A");} else
printf("AA");printf("AAA");
```

- a) AAA b) AAAA c) A
d) AA e) AAAAA

17. What is the output of the following program segment?

```
x = -1;
if (x++) printf("A");
else printf("B");
if (!x) printf("C");
```

- a) A b) B c) C d) BC e) AC

18. For what exact range of values of variables a and b, does the following code segment display the value 0?

```
m = -1;
if (a>20)
if (b<10)
if (a>=30)
m =4;
else
m=0;
else
m=1;
else
m=2;
printf("%d",m);
```

- a) a > 20 b) 20 ≤ a ≤ 30
b ≥ 10 b ≤ 10
c) 20 < a < 30 d) a ≥ 30
b < 10 b < 10
e) 20 < a < 30
b ≥ 10

19. Assuming that x, y and flag are integer type variables, which one implements "assign the value 1 to flag if x is an even number or y is multiple of x, 0 otherwise"?

- a) if (x%2==1 || x%y ==0) flag=1;
else flag=0;
b) if (x%2==0 && x%y ==0) flag=1;
else flag=0;
c) if (x%2==0 && y%x ==0) flag=1;
else flag=0;
d) if (x%2==0 || y%x ==0) flag=1;
else flag=0;
e) if (x%2==0)
if (y%x ==0)
flag=1;
else flag=0;

20. What is the output of the following program segment?

```
x=2;
y=3;
if (x <2 && y >2)
    if (y >0)
        printf("A");
    else printf("B");
else if (y>1 || x >0)
    printf("C");
```

- a) A b) B c) C d) AC
e) no output

Use below program to answer question 21-24.

```
#include <stdio.h>
int main() {
    int a=0, b=0, c=0, f, g;
    scanf("%d%d%d", &f, &g, &h);
    c=0;
    for (a=g; a<f; a++)
        for (b=h; b<f; b++)
            c++;
    printf("%d\n", c);
}
```

21. Which one of the below is the output of the above program for the input 5 1 2?
a) 1 b) 4 c) 10 d) 12 e) 15

22. Which one of the below is the output of the above program for the input 5 2 1?
a) 1 b) 4 c) 10 d) 12 e) 15

23. Which one of the below is the output of the above program for the input 5 4 4?
a) 1 b) 4 c) 10 d) 12 e) 15

24. Which one of the below is the output of the above program for the input 5 3 3?
a) 1 b) 4 c) 10 d) 12 e) 15

Use below program for questions 25-26.

```
#include <stdio.h>
int main() {
    int a=0, b=0, c=0, f, g;
    scanf("%d%d", &f, &g);
    c=0;
    for (a=g; a<f; a++)
        for (b=g; b<a; b++)
            c++;
    printf("%d\n", c);
}
```

25. Which one of the below is the output of the above program for the input 5 1?

- a) 3 b) 6 c) 10 d) 12 e) 15

26. Which one of the below is the output of the above program for the input 5 1?

- a) 3 b) 6 c) 10 d) 12 e) 15

Use below program to answer to questions 27-30.
/* The following program finds the maximum of f positive integers.

Find values for α , β , γ , δ . */

```
#include <stdio.h>
int main() {
    int a=0, b=0, c=0, d=0, e=0, f, g, h;
    scanf("%d",&f);
    g=  $\alpha$ ; // g stores the maximum,
            // initialize to ?
            // h is the counter
    for (h=1;  $\beta$ ;  $\delta$ ) // expression?
        // what happens to h?
        { scanf("%d",&a); // read a number
          if (a>g) g=  $\gamma$ ; // assignment?
        }
    printf("max is %d\n",g);
}
```

27. What should replace α ?

- a) 0 b) 1
c) 10 d) Maximum integer
e) Anything

28. Which expression should replace β ?

- a) $g < h$ b) $g \leq h$ c) $h < f$
d) $h \leq f$ e) $g < f$

29. Which expression should replace γ ?

- a) 0 b) $g+a$ c) a d) h e) $g+h$

30. Which expression should replace δ ?

- a) $h = 0$ b) $h = a$ c) $h = g$
d) $h += g$ e) $h += 1$

31. What is the value of x after the execution of the below statements?

```
int x = 4;
x /= x - 2;
```

- a) 0 b) -1 c) 2 d) 1 e) 4

32. What will be the output of the below code segment?

```
m=0;
do {
    m=m-2;
} while (m>5)
printf("%d",m);
```

a) 0 b) 2 c) -2 d) 5 e) 7

33. What will be the output of the below code segment?

```
m=0;
while (m>5)
    m=m-2;
printf("%d",m);
```

a) 0 b) 2 c) -2 d) 5 e) 7

34. What will be the value of dif at the end of following code segment?

```
int m=1;
int myvar,dif;
while(m<=2)
    myvar=m++;
dif=m-myvar;
```

a) 0 b) 1 c) -1 d) 2 e) -2

Use below program to answer to questions 34-35.

```
counter1 =0
counter2=0;
while (counter1 <3 ) {
    while ( (counter2+counter1)%2==0)
        printf("%d",counter2++);
    counter1++;
}
```

35. How many times will the printf statement be executed?
a) 3 b) 4 c) 7 d) 0 e) 2

36. What will be the value of the counter2 after the execution of the above code segment?
a) 3 b) 0 c) 2 d) 4 e) 1

37. What is the value of `_n_` after execution of the below switch statement?

```
switch (c = 1) {
    case 1: n = 0;
    case 0: n += 1;
    case 2: n = n * 2;
}
```

a) 0 b) 1 c) 2 d) 3 e) 4

38. What is the value of `_n_` after execution of the below switch statement?

```
int n=0;
switch (n++) {
    case 0: n += 1;
    case 1: n += 2;
    case 2: n += 3;
    default:
}
```

a) 0 b) 1 c) 3 d) 7 e) 6

39. What is the value of `_n_` after execution of the below switch statement?

```
int n=0;
switch (3) {
    case 3: n = 1;
    case 2: n = 2;
    case 1: n = 3;
    default: n = -1;
}
```

a) 0 b) 1 c) 2 d) 3 e) -1

40. What is the output of the following code segment?

```
int a;
a=3;
switch(a) {
    case 2: printf("i");
    break;
    case 3: printf("ii");
    case 4: printf("zz");
    break;
    default: printf("iii");
}
```

a) i b) ii c) iiiii d) iizz e) zz