

CSCI1320

MID-TERM EXAM 2

Multiple Choices

Identify the letter of the choice that best completes the statement or answers the question.

1. What is a pointer? **D**
 - A. An address in memory
 - B. A way to implement call by reference in C
 - C. A possible reference to a variable
 - D. All of the above
 - E. None of the above
2. Given the declaration: `int *p, i;`
Which of the following is true about the variables p and i: **B**
 - A. i and p are both pointers to int
 - B. p is a pointer to int, but i is not
 - C. i is a pointer to int, but p is not
 - D. neither p nor i is a pointer
 - E. none of the above
3. Given the declaration: `int *p, i;`
Which of the following is **NOT** a legal assignment into the variable p? (assume that `stdio.h` has been included). **E**
 - A. `p = &i;`
 - B. `p = 0;`
 - C. `p = NULL;`
 - D. `p = (int *) 1307;`
 - E. All of the above are legal assignments into the variable p.
4. Which of the following statements is true about the `*` operator? **D**
 - A. It is known as the dereference operator
 - B. It is known as the indirection operator
 - C. It can be a unary operator
 - D. All of the above
 - E. None of the above
5. Which of the following statement is true? **A**
 - A. A function is a block
 - B. In `switch(value)` statement, the value can be a floating-point number
 - C. The expression, `if (a=b)`, checks if the values of a and b are the same
 - D. A function can be defined within a function
 - E. None of the above

6. What is scope in C? **C**
- A. The values a variable can be
 - B. The type of variables a pointer can address
 - C. The part of the program text in which the identifier is known or accessible
 - D. All of the above
 - E. None of the above

7. What is the result after the following statement is executed? **D**

```
int *p = (int *) 3;
```

- A. Compile error
- B. An integer variable p is allocated, and initialized to 3;
- C. A pointer to integer is allocated, and the value of the integer it points to is set to 3.
- D. A pointer to integer is allocated, and the address it points to is set to 3.
- E. None of the above

8. What is the value of i after the following code segment is executed? **B**

```
int i, *p;  
i = 5;  
p = &i;  
*p = 10;
```

- A. 5
- B. 10
- C. This code segment will have execution error
- D. bx3f56c
- E. None of the above

9. Suppose `int x=7; int y=7;` what is the value of the following expression? **C**

```
!x - y + 1
```

- A. 0
- B. 7
- C. -6
- D. 1
- E. None of the Above

10. What is the following program output? **B**

```
#include <stdio.h>
int main(void)
{
    int x=0;

    for(;;)
        if (x==4) break;
        else x++;
        printf("%d", x);

    return 0;
}
```

- A. 3
- B. 4
- C. 1 2 3
- D. 1 2 3 4
- E. Infinite loop

11. What is the following program output? **C**

```
#include <stdio.h>
int main(void)
{
    int x=4;

    do {
        printf("%d ", x--);
    } while (0);

    printf("%d ", x);
    return 0;
}
```

- A. 4
- B. 3 3
- C. 4 3
- D. 4 3 2 1 0 0
- E. Infinite loop

Use the following code for questions 12-14

```
#include<stdio.h>
int main(void)
{
    int i=0, j=0, cnt=0;

    for (i=1; i< 3; i++){
        for (j=1; j<=i; j++){
            cnt++;
            if (i + j != 3)
                printf("HELLO\n");          // LINE 1
        }
    }
    printf("%d \n", cnt);          // LINE 2
    return 0;
}
```

12. How many times the word HELLO is printed (LINE 1)? **C**

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

13. What is the correct output of LINE 2? **B**

- A. 0
- B. 3
- C. 6
- D. 8
- E. 27

14. What are the last values of i, j? **D**

- A. i=0, j=0
- B. i=1, j=1
- C. i=2, j=2
- D. i=3, j=3
- E. i=4, j=4

15. What is the output of the following program? **D**

```
#include <stdio.h>
int main(void)
{
    int i, j=0;
    for(i=1; i<4; i++)
    {
        if (i==3) continue;
        j++;
    }
    printf("%d %d", i, j);

    return 0;
}
```

- A. 2 1
- B. 3 2
- C. 3 3
- D. 4 2
- E. 4 3

16. What is the output of the following program? **C**

```
#include <stdio.h>
int main(void)
{
    int i=1, sum=0;
    for (; i<=5; )
        sum += i++;
    printf("%d", sum);
    return 0;
}
```

- A. 5
- B. 10
- C. 15
- D. Error
- E. Infinite loop

17. What is the output of the following code? **B**

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

    for (i=1; i<4; i++)
        if (i%3 != 0)
            printf("HOWDY! ");
        else
            printf("TRINITY! ");

    return 0;
}
```

- A. TRINITY! TRINITY! HOWDY!
- B. HOWDY! HOWDY! TRINITY!
- C. TRINITY! TRINITY! HOWDY! TRINITY!
- D. HOWDY! HOWDY! TRINITY! HOWDY!
- E. None of the above

18. What is the output of the following code? **D**

```
#include <stdio.h>
int main(void)
{
    int a=1, b=1;
    while ( a != 3) {
        a %= b;
        b++; a++;
    }
    printf ("%d, %d \n", a, b);

    return 0;
}
```

- A. 1, 1
- B. 2, 2
- C. 3, 3
- D. 3, 4
- E. None of the above

19. What is the output of the following code? **D**

```
#include<stdio.h>
int main(void)
{
    int value=3, cnt = 0;

    switch (value) {
    case 1:    printf("HOWDY! ");
    case 2:    cnt++;
    case 3:    printf("GIG'EM! ");
               cnt++;
    case 4:    cnt++;
               break;
    case 5:    cnt++;
               printf("TRINITY! ");
    default:  cnt--; break;
    }
    printf("Count=%d", cnt);

    return 0;
}
```

- A. HOWDY! GIG'EM! Count=2
- B. HOWDY! GIG'EM! Count=3
- C. GIG'EM! Count=1
- D. GIG'EM! Count=2
- E. None of the above

Consider the following program for questions 20-21

```
#include<stdio.h>
int main(void)
{
    int value = 0;
    scanf("%d", &value);
    switch(value){
        case 1: putchar('a');
        case 2: putchar('b');
        case 3: putchar('c');
        default: putchar('d');
    }
    return 0;
}
```

20. What is the output if value is equal to 0? **C**

- A. 0
- B. a
- C. d
- D. abcd
- E. None of the above.

21. What is the output if value is equal to 1? **D**

- A. a
- B. ad
- C. d
- D. abcd
- E. None of the above.

22. What is the output of the following program? **D**

```
#include <stdio.h>
int main(void)
{
    int a = 2, b = 4, c = 1, d = 2;
    switch (a/b+c/d)
    {
        case 0: printf("%d ", a + b);
        case 1: printf("%d ", a - ++b);
        case 2: printf("%d ", a * - d / c); break;
        default: printf("%d\n", a > b ? a / b : d); break;
    }
    return 0;
}
```

- A. 6
- B. -3
- C. -3 -4
- D. 6 -3 -4
- E. None of the above

Use the following code for questions 23-25

```
#include <stdio.h>
int fun(int x, int y)
{
    int c;
    x++; y++;
    c = x+y;
    printf("%d ", c);           //LINE 1
    return c;
}
int main(void){
    int a=2, b=4, c=0;
    printf("%d ", fun(a, b));   //LINE 2
    printf("%d %d %d", a, b, c); //LINE 3
    return 0;
}
```

23. What is the effect of LINE 1? **D**

- A. 0
- B. 2
- C. 6
- D. 8
- E. None of the above

24. What is the effect of LINE 2? **D**

- A. 0
- B. 2
- C. 6
- D. 8
- E. None of the above

25. What is the effect of LINE 3? **A**

- A. 2 4 0
- B. 2 4 6
- C. 2 4 8
- D. 3 5 0
- E. None of the above

Consider the following program for question 26 and 27.

```
#include <stdio.h>

int x=1, y=2, z=3;
int f(void);

int main (void)
{
    printf("%d\n", f());           // LINE 1
    printf("%d, %d, %d\n", x, y, z); // LINE 2
    return 0;
}

int f(void)
{
    int x=2;
    y=z++;
    return (x+y+z);
}
```

26. What is the output of LINE 1? **D**

- A. 6
- B. 7
- C. 8
- D. 9
- E. None of the above

27. What is the output of LINE 2? **B**

- A. 1, 2, 3
- B. 1, 3, 4
- C. 2, 3, 4
- D. 2, 4, 3
- E. None of the above

28. Which Boolean expression will find if x is **NOT** in the range from 10 to 25? **B**

- A. $x < 10 \ \&\& \ x > 25$
- B. $x < 10 \ || \ x > 25$
- C. $x > 10 \ \&\& \ x < 25$
- D. $x > 10 \ || \ x < 25$
- E. None of the above

29. What will the values of p and q be after the following code segment is executed? **E**

```
int i, *p, *q;
```

```
    i = 5;  
    p = &i;  
    *q = *p;  
    i = 10;
```

- A. p = 5 and q = 5
- B. p = 10 and q = 10
- C. p = 5 and q = 10
- D. p = 10 and q = 5
- E. The code segment will have execution error

30. Which of the following statements declares a function with a pointer variable as a parameter? **E**

- A. void fun (int ptr);
- B. void fun (&int ptr);
- C. void fun (*int ptr);
- D. void fun (int &ptr);
- E. void fun (int *ptr);