The time limit for the contest is 45 minutes. Each correct question is awarded 6 points; no points are given or subtracted if unanswered; 2 points are deducted for an incorrect answer.

Best of Texas 2018-19 Computer Science Test 2

1. 307 = _____

   a. 453_8
   b. 472_8
   c. 101001101_2
   d. 100110011_2
   e. none of the above

2. What is the output of the code segment at right?

```
String s = "abaca";
out.print(s.matches("a[ca]+"));
```

   a. true
   b. false
   c. An error will be generated.

3. What is the output of the code segment at right?

```
String s = "abcdef";
out.println(s.substring(1,6));
```

   a. bcde
   b. abcde
   c. bcdef
   d. abcdef
   e. An error will be generated.

4. Which of the following is a valid statement?

   a. "Hello".println();
   b. "Hello".println;
   c. "Hello".length();
   d. "Hello".length;
   e. none of the above

5. What is the output of the code segment at right?

```
String [] list = new String[3];
list[1] = "A";
list[2] = "B";
for (int i = 0; i < list.length; i++)
  out.print(list[i] + " ");
```

   a. 0 A B
   b. A B
   c. null A B
   d. ArrayOutOfBoundsException

6. What is output by the code segment at right?

   a. 0 b. 1 c. 2 d. 3

```
String s1 = "Texas";
String[] s2 =
    s1.split("[T]+");
System.out.println (s2.length);
```

7. Which of the following values could be assigned to a variable of type *byte* without possible loss of precision?

   a. -4
   b. 0
   c. 37
   d. 120
   e. all of the above

8. What is the output of the code segment at right?

   a. true
   b. false
   c. 0
   d. error

```
String s1 = "Computer Science";
String s2 = s1;
System.out.print (s1==s2);
```

9. What is the output of the code segment at right?

   a. 0
   b. 4
   c. 5
   d. 6
   e. 14

```
String s = "dabcdefedcbabcdef";
System.out.print(s.indexOf("def"));
```

10. What is the output of the code segment at right?

    a. 7
    b. 8
    c. 34
    d. 43
    e. none of the above

```
int a = 4;
int b = a--;
out.print ("" + a + b);
```

11. What is the output of the statement at right?

```
System.out.println((char)(3 + 'C' + 2));
```

a. F2
b. H
c. C5
d. 3C2
e. 3E

---

12. What is the output of the code segment at right?

```
char a[] = {'a','b','c','d','e'};
String s = "";
for (int i = 0; i < 5; i++)
  s += a[i];
System.out.println(s.substring(0,3));
```

a. ab
b. abc
c. abcd
d. abcde
e. none of the above

---

13. Which of the following statements, if added to the code segment at right, would output the length of *a*?

a. out.print(a.length);
b. out.print(a.length());
c. out.print(a.size());
d. more than one of the above

---

14. What is output by the method at right when called with m("123aBcDeF")?

```
public static void m(String s)
{
    for (int i = 0; i < s.length( ); i++)
        out.print(Character.
            toUpperCase(s.charAt(i)));
}
```

a. 123AbCdEf
b. 123ABCDEF
c. error
d. none of the above

---

15. What is the output of the code segment at right?

```
String s = "abcabc";
String a[] = s.split("bc");
StringBuffer c = new StringBuffer();
for (String d: a)
  c.append(s);
out.println(c.toString());
```

a. aa
b. aaaa
c. abcabc
d. abcabcabcabc
e. none of the above

16. Which of the following will print the number of elements in an array *a*?

a. System.out.print(a.size());
b. System.out.print(a.length);
c. System.out.print(a.length());

---

17. What is the output of the statement at right?

```
System.out.println("abc" + 4 + 8);
```

a. abc12
b. abc48
c. abcdh
d. abc7074
e. error

---

18. What is returned by the method at right when called with m(64)?

```
public static int m (int a){
    if (a <= 10)
        return a;
    else return m(a % 10) * 2;
}
```

a. 4
b. 8
c. 64
d. 128
e. none of the above

.

---

19. What is the output of the code segment at right?

```
int n = 1;
switch (n){
    case 1: out.print(1);
    case 2: out.print(2);
    break;
    default: out.print(3);
}
```

a. 1
b. 3
c. 12
d. 123
e. none of the above

---

20. What is returned when the method at right is called with m(4)?

```
public static int m (int x)
{
    x = (x == 0) ? x : m(x-1);
    return x;
}
```

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

21. The class variable *Lions*

a. is shared by all instances of *Zoo*
b. creates a copy of itself for each instance of *Zoo*
c. cannot be directly accessed outside the class *Zoo*
d. both A and C
e. both B and C

```
public class Zoo{
    private static int Lions = 0;

    /*additional code here*/

}
```

---

22. What is the output of the code segment at right?

a. 2
b. 2.5
c. 3
d. An error will be generated
e. none of the above

```
final int n = 4;
n -= 3/2;
System.out.print(n);
```

---

23. Which of the following statements would produce the same output as the statement at right?

a. System.out.print(4 * 4);
b. System.out.print(2 * 4);
c. System.out.print(2 ^ 4);
d. System.out.print(4 ^ 2);
e. none of the above

```
System.out.print((int)Math.pow(2,4));
```

---

24. What is the output of the code segment at right?

a. true
b. false
c. null
d. An error will be generated.

```
String s1 = null;
String s2 = "null";
System.out.print(s1.equals(s2));
```

25. In the code segment at right, which of the following would replace **<1>** to convert *s* to an integer?

a. String.parseInt(16)
b. s.parseInt()
c. Integer.parseInt(s, 16)
d. Integer.parseInt(s)

```
String s = "A";
int count = <1>;
```

---

26. What is the output of the code segment at right?

a. FAIL
b. 4321FAIL
c. 432FAIL
d. 4321
e. 432

```
try{
  int[] array1 = {1, 2, 3};
  int[] array2 = {4, 3, 2, 1};
  for(int i=0; i<array2.length;
        i++){

System.out.print(array2[i]);
     array1[i] = array2[i];
  }
}catch(Exception e){
  System.out.println("FAIL");
}
```

---

27. What is the output of the code segment at right?

a. -4-3-2-1
-3-2-10
-2-101
-1012

b. 1234
4123
3412
2341

c. 4321
4321
4321
4321

d. 4321
3210
210-1
10-1-2

```
int x, y;
for (x = 0; x < 4; x++){
 for (y = 4; y >0; y--)
  System.out.print (x - y );
  System.out.println();
}
```

---

28. What is the output of the code segment at right?

a. 6
b. 7
c. 033
d. 034
e. none of the above

```
int a = 12;
int b = 3;
int c;
for (c = 1; c <= 3; c++)
 a /= b;
System.out.print(""+a + b + c);
```

29. What is the output of the code segment at right?

a. 1
b. 12
c. 13
d. An exception will be thrown.

```
List <String>list = new
                ArrayList<String>();
list.add("1");
list.add("2");
list.add("3");
Iterator <String>iter = list.iterator ();
iter.next();
iter.next();
iter.remove();
iter.remove();
iter = list.iterator();
while (iter.hasNext())
  System.out.print((String)iter.next());
```

---

30. What is returned by the method at right when called with *m(15,10)*?

a. 1
b. 2
c. 5
d. 10
e. 11

```
public static int m(int a, int b){
  if (a%b == 0)
    return a + b;
  else
    return m(b, a/b);
}
```

---

31. What is the output of the code segment at right?

a. 0
b. 1
c. 2
d. error
e. none of the above

```
List<String>list = new
                ArrayList<String>( );
list.add("dog");
list.add("cat");
int sum = 0;
for (String word : list){
  if (word.indexOf ('m') > 6)
        sum ++;
}
System.out.print(sum);
```

---

32. Given the code segments at right, which of the following statements can be used to declare and initialize an object?

a. Student senior ( ) = new Person;
b. Person senior ( ) = new Student;
c. Student senior = new Person ( );
d. Person senior = new Student ( );

```
public class Person {
  public Person ( ) { }

}
```

```
public class Student extends
      Person {
  public Student ( )  { }

}
```

33. What is the output of the code segment at right?

a. 90
b. 144
c. 160
d. 1025
e. none of the above

```
int a = 5, b = 2, c = 10;
out.print((int)(Math.pow(--a,b++)*c--));
```

---

34. What is the output of the code segment at right?

a. true
b. false
c. An error will be generated.

```
String s = "d\\error";
out.print(s.matches("\\\\"));
```

---

35. What is the output of the code segment at right?

a. gfgdgb
b. gegcga
c. gbgdgf
d. gagdge
e. none of the above

```
String s1 = "abcdef";
String s2 = "";
for (int i = s1.length() - 1; i >= 0; i--){
  if (i%2 == 0)
    s2 += s1.substring (i, i+1);
  else
    s2 += "g";
}
System.out.print(s2);
```

---

36. What is the output of the code segment at right?

a. 246
b. 2468
c. 3072
d. 41632
e. none of the above

```
int i = 2, j = 8;
for (;i < 8; i +=2)
    j *= i * 2;
    out.print (j);
```

---

37. What is the output of the code segment at right?

a. fournull
b. 4null
c. 40
d. 4zero

```
Map<String, Integer> map = new
            HashMap<String, Integer>();
                map.put("one", 1);
                map.put("two", 2);
                map.put("three", 3);
                map.put("four", 4);
                map.put("five", 5);
                map.put("six", 6);
out.print(map.get("four"));
out.print(map.get("zero"));
```

38. What is the output of the code segment at right?

a. 7
b. 8
c. 9
d. none of the above

```
int a = 7, b = 9;
Queue <Integer> q = new
    LinkedList <Integer>();
q.add(a);
q.add(b);
int i = q.remove();
System.out.print(i);
```

---

39. The two setX methods at right are an example of _____.

a. an error
b. encapsulation
c. inheritance
d. polymorphism

```
public class C{
   private int x = 0;
   public void setX(int x){
         this.x = x;
   }
   public void setX(String s){
         this.x = Integer.parseInt(s);
   }
}
```

---

40. 1.001_2 = _____$_{10}$

a. 8.1
b. 1.5
c. 1.125
d. 8.001
e. .9

.

Best of Texas 2018-19 Computer Science Test 2 Answer Key

1.	D	21.	D
2.	B	22.	D
3.	C	23.	A
4.	C	24.	D
5.	C	25.	C
6.	C	26.	B
7.	E	27.	A
8.	A	28.	D
9.	B	29.	D
10.	C	30.	E
11.	B	31.	A
12.	B	32.	D
13.	A	33.	C
14.	B	34.	B
15.	D	35.	B
16.	B	36.	C
17.	B	37.	B
18.	B	38.	A
19.	C	39.	D
20.	A	40.	C

Computer Science Answer Sheet

1. _____	11. _____	21. _____	31. _____
2. _____	12. _____	22. _____	32. _____
3. _____	13. _____	23. _____	33. _____
4. _____	14. _____	24. _____	34. _____
5. _____	15. _____	25. _____	35. _____
6. _____	16. _____	26. _____	36. _____
7. _____	17. _____	27. _____	37. _____
8. _____	18. _____	28. _____	38. _____
9. _____	19. _____	29. _____	39. _____
10. _____	20. _____	30. _____	40. _____

correct x 6 _____

incorrect x 2 -_____

_____