Computer Science Contest #1718-14 February 24, 2018

Note: Correct responses are based on Java, **J2sdk v 1.8.x**, from Sun Microsystems, Inc. All provided code segments are intended to be syntactically correct, unless otherwise stated (i. e. error is an answer choice) and any necessary Java 2 Standard Packages have been imported. Ignore any typographical errors and assume any undefined variables are defined as used. **For all output statements, assume that the System class has been statically imported… *import static java.lang.System.\*;***

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| Question 1 xx  What is AC16 +2148 ?  A. 31010 B. 1000002 C. 4568 D. 10011002 E. 13816 | |
| Question 2 xx  What is output by the code to the right?  A. 2 B. 8 C. 32 D. 6 E. 1 | out.println(6+53/2%3); |
| Question 3 xx  What is output by the code to the right?  A. For 6 Items: 67.3  B. For 6 Items: $67.27  C. For 6 Items: 67.27  D. For 6 Items: 67.2  E. For 6 Items: 67.268 | out.printf("For %3d %s: %.1f", 6,  "Items", 67.268); |
| Question 4 xx  What is output by the code to the right?  A. ELIZABETH BENNET B. BKTH BENNET  C. KLIZABKTH BKNNKT D. BKTH BKNNKT  E. KLIZABETH BENNET | String s1 = "ELIZABETH BENNET";  String s2 = s1.substring(5);  out.println(s2.replace('E', 'K')); |
| Question 5 xx  What is output by the code to the right?  A. true B. false | boolean a = true;  boolean b = false;  boolean c = false;  out.println(!(!c && b)|| a); |
| Question 6 xx  What is output by the code to the right?  A. -10.4 B. -9.8 C. 3.8 D. -9 E. 3 | out.println(Math.ceil(-3.6)  +Math.abs(-6.8)); |
| Question 7 xx  What is output by the code to the right?  A. 74.89 B. 74.00 C. 74 D. 74.34 E. 75 | double r = 9.89;  double s = 65.34;  out.println(s+(int)r); |
| Question 8 xx  For which of these x and y values will the output of the code segment to the right be "Too Far Below"?  A. x = 25, y = 36 B. x = 75, y = 26  C. x = 80, y = 76 D. x = 65, y = 30  E. x = 65, y = 75 | if(x<60)  out.println("Too Far Left");  else if(x>75)  out.println("Too Far Right");  else if(y<20)  out.println("Too Far Above");  else if(y>35)  out.println("Too Far Below");  else  out.println("In The Box"); |
| Question 9 xx  What is output by the code to the right?  A. ETTIISSBBEEW B. ETISBEW  C. TEITSIBSEBWE D. WEEBBSSIITTE  E. EWBESBITIET | String s = "WEBSITE";  for(int i=s.length()-1;i>0;i--){  String t = s.substring(i-1,i);  out.print(s.charAt(i)+t);  } |
| Question 10 xx  What is output by the code to the right?  A. 2 B. 9 C. 6 D. 8 E. 3 | int[] arr={4,5,6,2,1,0,8,7,9,3};  int a = arr[3];  int b = arr[a];  int c = arr[b];  out.println(arr[c]); |
| Question 11 xx  What is output by the code to the right if the following is stored in info.dat?  6  5 4 hello  Welcome  8To Computer Science  A. 6 5 4 8 B. 6 5 4  C. 6 5 4 hello D. hello Welcome  E. hello Welcome To Computer Science | File f = new File("info.dat");  Scanner s = new Scanner(f);    while(s.hasNextInt()){  out.print(s.nextLine() +" ");  } |
| Question 12 xx  What is output by the code to the right?  A. 21 B. 13 C. 17 D. 25 E. 30 | int t = 4;  for(int i=0; i<13; i++){  if(i%3==1)  t+=2;  t+=1;  } out.println(t); |
| Question 13 xx  What is output by the code to the right?  A. 32 B. false C. 95 D. 127  E. No output due to syntax error | int x = 6+2\*14;  x &= 125;  out.println(x); |
| Question 14 xx  What is output by the code to the right?  A. -21 B. 22 C. -22 D. 23 E. -23 | int r = 67-45;  out.println(~r); |
| Question 15 xx  What is output by the code to the right?  A. 45 9 65  B. 0 2 4 6 8  C. 45 9 65 0 2 4 6 8  D. 0 2 4 6 8 45 9 65  E. 0 45 2 9 4 65 6 8 | ArrayList<Integer> numbers;  numbers = new ArrayList<Integer>();  numbers.add(45);  numbers.add(9);  numbers.add(65);  for(int i=0; i<5; i++)  numbers.add(i,i\*2);    for(int n:numbers)  out.print(n + " "); |
| Question 16 xx  What is output by the code to the right?  A. 72 B. 18 C. 288 D. 30 E. 123 | int a = 123^51;  a>>=2;  out.println(a); |
| Question 17 xx  How many ordered pairs make this boolean expression false ?  A. 0 B. 1 C. 2 D. 3 E. 4 |  |
| Question 18 xx  What is output by the code to the right?  A. 48 B. 12 C. 32 D. 24 E. 64 | char n = 'e';  char m = 'u';  out.println((m-n)\*3); |
| Question 19 xx  What is output by the code to the right?  A. 19  B. 20  C. 22  D. 18  E. 21 | int[][] mat = new int[5][5];  for(int i=0; i<14; i++)  for(int j=0; j<13; j++)  mat[i%5][j%5]=i+j;  out.println(mat[0][3]); |
| Question 20 xx  What is output by the code to the right?  A. onmlkj B. onmlkji  C. nmlkji D. nmlkj  E. onmlkjihgfedcba | char let = 'o';  while(let--!=105)  out.print(let); |
| Question 21 xx  What is output by //line 1?  A. 3  B. 1  C. 39  D. 12  E. 4 | static int zel(int m){  if(m%6>3)  return m\*3;  return m/3;  }  // client code  out.println(zel(13)); //line 1  out.println(zel(15)+zel(4)); //line 2 |
| Question 22 xx  What is output by //line 2?  A. 15  B. 17  C. 5  D. 6  E. 57 |

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| Question 23 xx  What is output by //line 1?  A. Board For ages 8-12  B. Board  C. For ages 8-12  D. Board  For ages 8-12  E. No output due to syntax error | class Toy{  int low, high;  public Toy(int lowA, int highA){  low=lowA;  high=highA;  }    public String getAgeInfo(){  return "For ages "+low+"-"+high;  }  }  class Game extends Toy{  String type;  public Game(int l, int h,String t){  super(l,h);  type=t;  }    public String getInfo(){  return type +"/n"+getAgeInfo();  }  }  //client code  Game m = new Game(8,12,"Board");  out.println(m.getAgeInfo()); //line1  Toy t = new Game(3,10,"Imagination");  out.println(t.getInfo()); //line 2 |
| Question 24 xx  What is output by //line 2?  A. Imagination  B. Imagination For ages 3-10  C. For ages 3-10  D. Imagination  For ages 3-10  E. No output due to syntax error |
| Question 25 xx  What is output by the code to the right?  A. AED YSM POK CJB B. AED-YSM-POK-CJB  C. AED5YSM5POK5CJB D. AED-YS5-PO5-C5B5  E. AED-YS5-PO5-C5B | String s = "AED-YSM-POK-CJB";  String[] arr = s.split("[F-N]");  for(String t:arr)  out.print(t+"5"); |
| Question 26 xx  Which of the following is **­NOT** output by the code to the right?  A. 9-19 B. 1-14 C. 13-18 D. 20-23 E. 10-18 | Random rand = new Random();  int a = rand.nextInt(16)+6;  int b = rand.nextInt(11)+13;  out.println(a+"-"+b); |
| Question 27 xx  What is output by taldorei(20)?  A. 36 B. 38 C. 31 D. 39 E. 34 | static int taldorei(int vm){  if(vm<8)  return 6;  return vm/3+taldorei(vm-2);  } |
| Question 28 xx  What is output by the code to the right?  A. 78 B. 83 C. 173 D. 123 E. 73 | out.print(Integer.toOctalString(83)); |

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| Question 29 xx  What is output by exandria(35)?  A. 7 B. 6 C. 5 D. 3 E. 2 | static int exandria(int s){  int r=0;  int l=0;  int h=100;  int g=50;  while(g!=s){  if(s<g){  h=g;  g=(l+h)/2;  }  else{  l=g;  g=(l+h)/2;  }  r++;  }  return r;  } |
| Question 30 xx  What algorithm does the method exandria() represent ?  A. MergeSort B. QuickSort  C. Selection Sort D. Sequential Search  E. Binary Search |
| Question 31 xx  What is the preorder transversal of the binary tree to the right?  A. FANCYAPNTS B. ACAFNYPNTS  C. FACANYPNTS D. ACANSTPYNF  E. AACFNNPSTY | F  / \  A N  \ \  C Y  / /  A P  / \  N T  /  S |
| Question 32 xx  What is output by the code to the right?  A. 33 B. 39 C. 13 D. 36 E. null | Map map;  map= new TreeMap<Integer, Integer>();  for(int i=0; i<20; i+=3)  map.put(i+1,i\*3);  out.println(map.get(13)); |
| Question 33 xx  What is output by the code to the right?  A. 2 B. 6 C. 10 D. 34  E. No output due to Index Out of Bounds Exception | LinkedList l;  l=new LinkedList();  for(int i=34;i>0;i-=4)  l.add(i);  l.remove(2);  l.remove(6);  out.println(l.get(6)); |
| Question 34 xx  What is the 2’s complement representation of -107?  A. 010110112 B. 100101012 C. 011010112 D. 110110112  E. 100101002 | |
| Question 35 xx  What is output by the code to the right?  A. 74 B. 67 C. 140 D. 39 E. 6 | int s = 67;  s>>=1;  s+=6;  out.println(s); |

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| Question 36 xx  Which of the following Boolean expressions is represented by the truth table to the right?  A.  B.  C.  D.  E. | |  |  |  |  | | --- | --- | --- | --- | | A | B | C | Output | | 0 | 0 | 0 | 0 | | 0 | 0 | 1 | 1 | | 0 | 1 | 0 | 0 | | 0 | 1 | 1 | 1 | | 1 | 0 | 0 | 1 | | 1 | 0 | 1 | 0 | | 1 | 1 | 0 | 1 | | 1 | 1 | 1 | 1 | |
| Question 37 xx  Using the generic stack pseudocode to the right, what is the last value popped?  A. 2 B. 8 C. 7 D. 4 E. 9 | Push 4  Push 2  Push 4  Push 5  Push 8  Pop  Push 7  Pop  Pop  Pop  Push 6  Push 9 |
| Question 38 xx  Which of the following is **NOT** a valid path in the graph to the right?  A. ABED  B. CBEC  C. DECE  D. ABCB  E. DECB |  |
| Question 39 xx  What is the infix expression for the following prefix expression?  -+\*SA\*/ILOR | |
| Question 40 xx  What is the decimal equivalent of the 8 bit value of 111001012? | |