Computer Science Contest #1112 – 05 Key

November 12, 2011

1) E
2) E
3) B
4) A
5) C
6) D
7) E
8) B
9) C
10) D

11) A
12) A
13) D
14) A
15) D
16) B
17) E
18) A
19) C
20) A

21) A
22) B
23) C
24) C
25) A
26) B
27) E
28) A
29) A
30) A

31) C
32) C
33) A
34) C
35) D
36) D
37) A
38) C
39) D
40) C

Note to Graders:

- All provided code segments are intended to be syntactically correct, unless otherwise stated (e.g. error is an answer). **Ignore any typographical errors.**
- Any necessary Standard Java 2 Packages are assumed to have been imported as needed.
- Assume any undefined (undeclared) variables have been defined as used.

Brief Explanations:

1. 10101 + 10101 = 42 in base 10. All of the answers are valid conversions from base 42 in base 10.
2. 1 + 21 = 22 0x1 is 1 and 07 is 7
3. 8 + 5 = 13 5 – 13 = -8
4. The for loop iterates 19 times and adds 2 to the variable with each iteration.
5. csr is found at spot 5. Returning the substring from spot 5 returns csrocks.
6. Any non-decimal number value added to another non-decimal numeric value = integer type
7. draw out a truth table and you find 6 situations where the end can be true
8. In a switch case, once a case is true all following cases are executed until break is encountered
9. *= autocasts to (int) - 4 + 7 = 11.0
10. Cat does not override toString() so the result of the println is the memory address / hashcode
11. ceil(8.5) returns 9.0 which is cast to a byte giving you 9 which is assigned to numy
12. 9.87654 is set to 3 decimal places via the .3f printf rounds so you get 9.877
13. funny13 is the output as two lines are used – if this was all in one line the output would be funny76
14. 5 is stored at spot 2 2 in the matrix
15. 1 + 2 + 4 = 7
16. abcdefg contains 7 characters
17. 3 / 3 happens 1st so 3 is shifted to the left 1 time making it 6 - << multiplies by 2
18. A Boolean can be instantiated with true or TRUE
19. 0, 4, 8, 12, and 16 are removed the list and printed
20. 10.3 / 3 = 3.43 10 % 3 = 1.30
21. true, false, true, false, true, false is printed after the loop toggles the boolean values of the array
22. The objects do not share the same the memory address, but they do share the same value.
23. The objects do not share the same the memory address nor do they do share the same value.
24. Box is instantiated with the value 9 and then the toString is called to print out the 9.
25. The parent Box has a volume value of 0 and the child has a volume value of 11.
26. The parent Box has a volume value of 0 and the child has a volume value of 3.
27. The array is printed in sorted order after the sort completes.
28. 3 swaps were made to put all of the items in order.
29. 45 *s are printed out by the nested loops
30. 10 * 9 = 90 / 2 = 45
31. Sets do not store duplicate values.
32. Min heaps always take the minimum value out first. The items in the tree may not be in naturally sorted order.
33. The matrix stores 5 arrays that contain 3 integers each.
34. The nested loops activate the line of the code 75 times.
35. 8 10 4 is the output after the nested loops finish manipulating the matrix. JEliot is agreat code visualization tool.
36. The recursive method prints out the string in reverse. The int parameter states how many letters to reverse.
37. The recursive method prints out the string in reverse. The int parameter states how many letters to reverse.
38. Character.MIN_VALUE is 0. 0 – 1 = -1. The char cast is just there to make the line interesting. Placing parenthesis around the math would change the anwer.
39. The replace all code just places () around the spaces in the string.
40. The string does not match the provided match stirng.