★ANSWER KEY – CONFIDENTIAL★

UIL COMPUTER SCIENCE – 2019 DISTRICT

Questions (+6 points for each correct answer, -2 points for each incorrect answer)

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

** See "Explanation" section below for alternate, acceptable answers.*

Note: Correct responses are based on **Java SE Development Kit 8 (JDK 8)** from Sun Microsystems, Inc. All provided code segments are intended to be syntactically correct, unless otherwise stated (e.g., "error" is an answer choice) and any necessary Java SE 8 Standard Packages have been imported. Ignore any typographical errors and assume any undefined variables are defined as used.

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Explanations:

1.	B	1 0 0 1 1 0 0 0 + 0 1 0 1 0 0 1 1 1 1 1 0 1 0 1 1
2.	B	15/8%3+8*4 = 1%3+8*4 = 1+8*4 = 1+32 =33
3.	D	All three statements use print and there are no newline escapes \n so everything is on one line. \" prints a single quote. \\ prints a backslash.
4.	A	0 1 2 3 4 5 6 7 8 9 10 11 s p i d e r - v e r s e substring(6) begins at subscript 6 and continues to the end of the string. trim() removes any whitespace from either end of a string. In this case it has no effect.
5.	E	Both line #3 and line #4 will print false.
6.	C	Rounds to the nearest integer and returns a long.
7.	B	14/6+1.254 = 2+1.254 = 3.254
8.	E	The Boolean expressions for both the if statements evaluate to false leading to the else statement. Mario Kart would be printed in all cases.
9.	A	e is decremented before the first print so the output begins at 8. e=2 begins the last iteration of the loop where e is then decremented to 1 which is the last value printed.
10.	B	index 0 1 2 3 4 d 4.0 1.5 8.0 0.0 5.25 i 1 4 3 0 2 All int values are promoted to double.
11.	C	The file pointer is moved with every call to next() so every other word is printed until "rabbit" is encountered.
12.	D	d e 0.0 3.5 3.5 4.25 7.75 5.0 12.75 5.75 18.5 6.5
13.	D	3&2+2|3 = 3&4|3 = 0|3 = 3 011 and 100 000 or 011 011
14.	B	Short.BYTES = 2 and Byte.BYTES = 1. Math.max(2,1) is 2
15.	E	list.remove(2) removes the element at index 2. In this case "3". list.remove("1") removes the String "1".
16.	B	String s is a class field and is initialized to null then printed before being assigned a value in the parameter.
17.	A	The regular expression in the second line will match any string that contains any character exactly 3 times followed by a dash then any word character one or more times followed by a dash then any non-whitespace character one or more times. In the third line matches() will return true if str contains 325 followed by any character, 978 followed by any character then 1400. The fourth line will match any character zero or more times.
18.	C	super() is a call to the parent class constructor. Birthdate extends Object by default.
19.	E	Methods must return a value matching the return type of the method.
20.	D	The reserved word this designates the fields within the object rather than the parameters of the same name.
21.	B	A. Does not return a value. C. Incorrect logic. Subtraction is reversed. D. Makes references to private fields.

<table>
<tr><td>22.</td><td>E</td><td>A. Incorrect call to Birthdate constructor.
B. No type for the myFriend object.
C. Incorrect call to the Friend constructor.
D. Missing key word new for the call to the Birthdate constructor.</td></tr>
<tr><td>23.</td><td>C</td><td>Sorts each column in ascending order.</td></tr>
<tr><td>24.</td><td>C</td><td>Choice C is an implementation of a selection sort.</td></tr>
<tr><td>25.</td><td>B</td><td>If the array is already in ascending order that would be the best case scenario for an insertion sort.</td></tr>
<tr><td>26.</td><td>D</td><td>!isEmpty() returns true as long as the stack contains any elements.</td></tr>
<tr><td>27.</td><td>A</td><td>
<table>
<tr><td>push socks</td><td>socks</td><td></td><td></td><td></td></tr>
<tr><td>push shoes</td><td>shoes</td><td>socks</td><td></td><td></td></tr>
<tr><td>pop</td><td>socks</td><td></td><td></td><td></td></tr>
<tr><td>push shirt</td><td>shirt</td><td>socks</td><td></td><td></td></tr>
<tr><td>push pants</td><td>pants</td><td>shirt</td><td>socks</td><td></td></tr>
<tr><td>pop</td><td>shirt</td><td>socks</td><td></td><td></td></tr>
<tr><td>push socks</td><td>socks</td><td>shirt</td><td>socks</td><td></td></tr>
<tr><td>push coat</td><td>coat</td><td>socks</td><td>shirt</td><td>socks</td></tr>
<tr><td>pop</td><td>socks</td><td>shirt</td><td>socks</td><td></td></tr>
</table>
</td></tr>
<tr><td>28.</td><td>A</td><td>5+4+3+2+1+5=20</td></tr>
<tr><td>29.</td><td>E</td><td>Integer.toString(x,y) returns x shown in base y. In this case 16 as a binary number.
$16_{10} = 10000_2$.</td></tr>
<tr><td>30.</td><td>B</td><td>The method mtd returns the variable e. e is of type double therefore the return type of the method must also be double.</td></tr>
<tr><td>31.</td><td>D</td><td>i=3 j=6 e=4.0
i=4 j=6 e=24.0
i=5 j=6 e=29.0</td></tr>
<tr><td>32.</td><td>E</td><td>Object is the cosmic super class! Any type data including primitives can be assigned to a variable of type Object. Primitive data types are autoboxed into wrapper class objects.</td></tr>
<tr><td>33.</td><td>C</td><td>
<table>
<tr><td>x</td><td>1</td><td>2</td><td></td><td>3</td><td></td><td>4</td><td>5</td><td></td><td>6</td><td></td><td>7</td><td></td><td>8</td><td>9</td><td></td><td>10</td><td></td></tr>
<tr><td>t</td><td>0</td><td>1</td><td>4</td><td>7</td><td>10</td><td></td><td>12</td><td>15</td><td>21</td><td>24</td><td>26</td><td>29</td><td></td><td>38</td><td>41</td><td>43</td><td>46</td></tr>
</table>
</td></tr>
<tr><td>34.</td><td>A</td><td>Must be static to facilitate a call to a method using the class name i.e. Math.max(1,2). Some but not all return double.</td></tr>
<tr><td>35.</td><td>E</td><td>z is decremented to 0 before the division is performed in the expression x>y/--z. The code segment will compile but a division by 0 exception is thrown when it is executed.</td></tr>
<tr><td>36.</td><td>D</td><td>Primitive data types cannot serve as parameter types for generic classes.</td></tr>
<tr><td>37.</td><td>B</td><td>51 decimal is 00110011 binary. Take the complement to get 11001100. Add one and the result is 11001101.</td></tr>
<tr><td>38.</td><td>B</td><td>This expression simplifies to XNOR. !(True^False) = !True = False</td></tr>
<tr><td>39.</td><td>5</td><td>Each row in the adjacency matrix corresponds to a vertex.</td></tr>
<tr><td>40.</td><td>!(A&&B)^C</td><td>Also accept !(A&B)^C. Do not accept if written using generic notation.</td></tr>
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