Creative Development Questions

DIRECTIONS: Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one that is best in each case.

1. Which of the following is **NOT** true about a computing innovation?
   (A) A computing innovation includes a program as an integral part of its function.
   (B) A computing innovation can have a physical side to it.
   (C) A computing innovation can be nonphysical.
   (D) A computing innovation can be purely hardware.

2. Where can the inspiration for a computing innovation come from?
   (A) Inspiration for computing innovations can be found anywhere.
   (B) Innovations build on previous innovations only.
   (C) Customer needs are the sole driving force of new computing innovations.
   (D) Money is the sole driving force of new computing innovations.

3. Who or what creates computing innovations?
   (A) Industry
   (B) People
   (C) Companies
   (D) Other innovations

4. Which of the following traits is **NOT** necessary for effective collaboration?
   (A) Communication
   (B) Consensus building
   (C) Proximity
   (D) Conflict resolution and negotiation

5. What is a program?
   (A) A collection of program statements that perform a specific task when run by a computer
   (B) A collection of program statements that are part of an algorithm
   (C) How software behaves and how it functions
   (D) A code segment

6. What is a code segment?
   (A) A collection of program statements that perform a specific task when run by a computer
   (B) A collection of program statements that are part of a program
   (C) How software behaves and how it functions
   (D) An innovation that solves a problem

7. What is true about program input?
   (A) A program can have many inputs, but they all need to be of the same type.
   (B) A single program takes in a single input and has a single output.
   (C) A program's input needs to be text based.
   (D) Input can come in a variety of forms, such as tactile, audio, visual, or text.

8. What is **NOT** true about an event?
   (A) An event is associated with an action and supplies input data to a program.
   (B) An event does not affect the sequence of a program.
   (C) An event can be triggered by a mouse click.
   (D) An event affects the flow of execution of a program.

9. The design of a program incorporates investigations to determine its requirements. Most programs are designed to be used by people other than the programmers. To meet the needs of the users, the investigation must identify the program constraint, as well as the concerns and interests of the people who will use the program.

   Which of the following is **NOT** an investigation tool for designing programs?

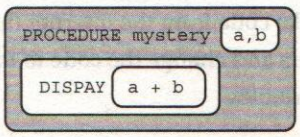
   (A) Programming the most elegant code
   (B) Collecting data through surveys
   (C) User testing
   (D) Direct observations

10. What type of error will the following procedure cause?

    Line 1: PROCEDURE mystery(list)
    Line 2:{
    Line 3: DISPLAY(list[0])
    Line 4: }

    (A) Logic error on line 3
    (B) Syntax error on line 3
    (C) Runtime error on line 3
    (D) Overflow error on line 3

11. The following procedure is intended to add two variables, *a* and *b*. What type of error will the following procedure cause?



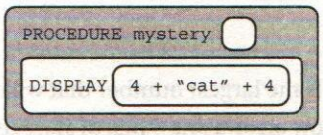
    (A) Logic error on line 3
    (B) Syntax error on line 3
    (C) Runtime error on line 3
    (D) No error

12. What type of error will the following procedure cause?

    // The following procedure is intended to display 4 added to the value contained in the variable *a*.
    Line 1: PROCEDURE mystery(a)
    Line 2: {
    Line 3: DISPLAY(a + 4)
    Line 4: }

    (A) Logic error on line 1
    (B) Syntax error on line 1
    (C) Runtime error on line 3
    (D) No error

13. The following program is intended to display the string 4cat4. What type of error will the following procedure cause?



    (A) Logic error
    (B) Syntax error
    (C) Runtime error
    (D) No error

14. What type of error will the following procedure cause?

    Line 1: PROCEDURE mystery( )
    Line 2: {
    Line 3: DISPLAY(a + 4 + "cabin")
    Line 4: }

    (A) Logic error on line 1
    (B) Syntax error on line 1
    (C) Runtime error on line 3
    (D) No error

15. What type of error will the following procedure cause?

```
Line 1:  PROCEDURE mystery(a)
Line 2:  {
Line 3:      DISPLAY a + 4 + "cabin")
Line 4:  }
```

(A) Syntax error on line 1
(B) Syntax error on line 3
(C) Runtime error on line 3
(D) No error

16. What is the largest number that will not cause an overflow error using 1 bit of storage?

(A) 0
(B) 1
(C) 2
(D) 3

17. What is the largest number that will not cause an overflow error using 3 bits of storage?

(A) 3
(B) 6
(C) 7
(D) 8

18. How many numbers can 1 bit of storage hold?

(A) 0
(B) 1
(C) 2
(D) 3

19. How many numbers can 4 bits of storage hold?

(A) 0
(B) 4
(C) 15
(D) 16

20. What type of error will the following procedure cause?

```
Line 1:  PROCEDURE findEven(num)
Line 2:  {
Line 3:      IF(num MOD 2 = 1)
Line 4:          RETURN("EVEN")
Line 5:      ELSE
Line 6:          RETURN("ODD")
Line 7:  }
```

(A) Logic error on line 3
(B) Syntax error on line 1
(C) Runtime error on line 3
(D) No error

21. A programmer is working on an algorithm to sort students by their grade point averages. The program will run but is not correctly sorting students. The programmer has tried to debug the program but cannot figure out where the error is occurring.

Which of the following will most likely lead to fixing the program?

(A) Post the program on social media and hope someone will quickly find and fix the error.
(B) Redesign the program so sorting is no longer a function.
(C) Ask a peer with fresh eyes to look over the code and hopefully find the solution together.
(D) Take code from the internet that sorts numbers and change the code to the correct variables.

22. Which of the following is **NOT** a characteristic of collaborating?
    (A) The location of the collaboration should be in one neutral physical location similar to a conference room.
    (B) Collaboration that includes diverse perspectives can help to avoid bias in the development of computing innovations.
    (C) Collaboration requires that individuals have interpersonal skills to collaborate effectively.
    (D) All of the above.

23. A programming team is developing a computer game where a troll is on an adventure while throwing bugs and boogers at frogs to gain points while making burping noises. Although the game runs smoothly without any errors, both adults and children said they do not like the theme of the game and would not play it on their own. Which of the following steps in the design process should the programmers revisit first?
    (A) Investigating and reflecting
    (B) Testing code
    (C) Prototyping
    (D) Designing