Introductory Computer Science

Choose one answer per question. Circle A, B, C, or D.

1. What is a single binary digit, such as 0 or 1, called?
   A. A bit
   B. A byte
   C. A pixel
   D. A character

2. Which device sends letters or symbols to a computer when you press its keys?
   A. Speaker
   B. Projector
   C. Keyboard
   D. Monitor

3. Which description best fits an algorithm for completing a task?
   A. A list of goals with the steps left unspecified
   B. A precise series of steps that can be followed
   C. A collection of unexpected program results
   D. A picture of the computer running the task

4. A game needs to store its current score and update it when points are earned. What can hold that changing value?
   A. A program's title
   B. A comment
   C. A fixed numeric literal
   D. A variable

5. How many different patterns can be made from exactly two bits?
   A. Two
   B. Four
   C. Three
   D. Eight

6. A program checks whether two bus stops are connected by routes. Which simplified model keeps the information needed for this job?
   A. Stops and route connections between them
   B. Street names and landmarks without bus stops
   C. The number and fuel capacity of buses
   D. Bus stop names in alphabetical order

7. A classroom check-in requires an ID card AND a signed form. When does this condition become true?

A. When neither item is present
B. When only the ID card is present
C. When only the signed form is present
D. When both items are present

8. A program starts with x equal to 4. It sets x to x + 2, then sets x to x × 3. What value does x hold at the end?

A. 12
B. 14
C. 18
D. 6

9. A program displays LONG when the time is at least 30 minutes. Otherwise it displays SHORT. What appears at exactly 30 minutes?

A. LONG only
B. SHORT only
C. Both LONG and SHORT
D. Neither message

10. A number starts at 2. A loop repeats the instruction «Double the current number, then add 1» exactly three times. What is the final number?

A. 24
B. 11
C. 17
D. 23

11. What decimal number does the binary number 1011 represent?

A. 13
B. 9
C. 11
D. 7

12. A linear search reads [6, 12, 7, 11, 7, 2] from left to right and stops when it finds 7. How many values does it inspect?

A. Two
B. Three
C. Four
D. Five

13. Binary search is looking for 18 in the sorted list [3, 7, 9, 12, 16, 18, 23]. It has just checked the middle value, 12. What is the remaining search range after this comparison?

A. [16, 18]
B. [3, 7, 9]
C. [12, 16, 18, 23]
D. [16, 18, 23]

14. A program starts a total at 0 and reads [2, 5, 8, 1]. For each value, it adds the value if it is even, then adds 1 regardless. What is the final total?

A. 14
B. 10
C. 13
D. 16

15. For each x in [1, 3], a program checks every y in [2, 4, 6]. It counts a pair only when y is greater than x. How many pairs does it count?

A. Six
B. Four
C. Five
D. Three