AP Computer Science Principles

Unit 6 Practice Exam: Lists, Loops, and Traversals

AP Computer Science Principles

2026–27 · 30 Questions · 30 Points

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Name: _____ Period: _____ Date: _____

DIRECTIONS: Practice exam. 30 questions, 30 points. Choose the single best answer unless a question says to select two; select-two questions are worth 1 point with partial credit. Code labeled **App Lab** is JavaScript, where list indexes start at **0**. All other code is AP pseudocode (Exam Reference Sheet), where list indexes start at **1**. When a program prints more than one line, the lines are listed in order, separated by spaces.

1. App Lab. What is printed to the console?

```
var words = ["sun", "river", "sky"];
console.log(words[1].length);
```

(A) 3
(B) 5
(C) river
(D) 1

2. What is displayed as a result of executing the code segment?

```
list ← []
APPEND(list, 3)
APPEND(list, 6)
INSERT(list, 1, 9)
REMOVE(list, 3)
DISPLAY(list)
```

(A) [3, 6]
(B) [9, 6]
(C) [9, 3]
(D) [3, 9]

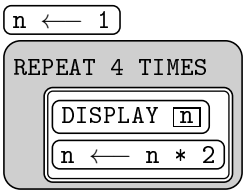
3. App Lab. What is printed to the console?

```
var list = ["a", "b"];
insertItem(list, list.length, "c");
console.log(list);
```

(A) ["a", "b", "c"]
(B) ["c", "a", "b"]
(C) ["a", "c", "b"]
(D) ["a", "b"]

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4. What is displayed as a result of executing the code segment?



(A) 2 4 6 8

(B) 2 4 8 16

(C) 1 2 3 4

(D) 1 2 4 8

5. App Lab. What is printed to the console?

```
var total = 0;
var n = 0;
while (total < 20) {
  n = n + 1;
  total = total + n;
}
console.log(n);
```

(A) 5

(B) 6

(C) 20

(D) 21

6. App Lab. What is printed to the console?

```
var count = 0;
for (var i = 0; i < 3; i++) {
  for (var j = 0; j < 4; j++) {
    count = count + 1;
  }
}
console.log(count);
```

(A) 7

(B) 3

(C) 12

(D) 4

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7. What is displayed as a result of executing the code segment?

```
x ← 0
REPEAT 2 TIMES
{
    REPEAT 3 TIMES
    {
        x ← x + 2
    }
    x ← x - 1
}
DISPLAY(x)
```

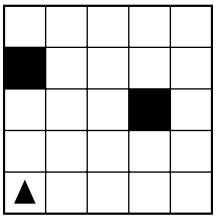
(A) 12

(B) 10

(C) 5

(D) 11

8. The robot below starts facing up. Rows are numbered 1–5 from the top, and columns 1–5 from the left.



What is the robot's location after the following code runs? (The Exam Reference Sheet's `CAN_MOVE(forward)` is `true` when the robot can move one square forward.)

```
REPEAT UNTIL (NOT CAN_MOVE(forward))
{
    MOVE_FORWARD()
}
ROTATE_RIGHT()
REPEAT UNTIL (NOT CAN_MOVE(forward))
{
    MOVE_FORWARD()
}
```

(A) Row 1, column 1

(B) Row 3, column 5

(C) Row 2, column 3

(D) Row 3, column 3

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9. App Lab. Which value could *not* be printed by this code?

```
console.log(randomNumber(0, 4) * 5);
```

(A) 0
(B) 15
(C) 4
(D) 20

10. Which of the following is a limitation of using a computer simulation?

(A) A simulation is a simplified model, so its results may not match what really happens.
(B) A simulation can only be run once.
(C) A simulation cannot use random numbers.
(D) A simulation is always slower than doing the real experiment.

11. Which code segment simulates rolling a six-sided die 100 times and displays how many rolls were a 6?

(A)
```
sixes ← 0
roll ← RANDOM(1, 6)
REPEAT 100 TIMES
{
   IF (roll = 6)
   {
      sixes ← sixes + 1
   }
}
DISPLAY(sixes)
```

(B)
```
sixes ← 0
REPEAT 100 TIMES
{
   IF (RANDOM(1, 6) = 6)
   {
      sixes ← sixes + 1
   }
}
DISPLAY(sixes)
```

(C)
```
sixes ← 0
REPEAT 100 TIMES
{
   IF (RANDOM(1, 6) = 6)
   {
      sixes ← 1
   }
}
DISPLAY(sixes)
```

(D)
```
sixes ← 0
REPEAT 6 TIMES
{
   IF (RANDOM(1, 100) = 6)
   {
      sixes ← sixes + 1
   }
}
DISPLAY(sixes)
```

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12. App Lab. What is printed to the console?

```
var letters = ["c", "a", "t"];
var word = "";
for (var i = 0; i < letters.length; i++) {
  word = word + letters[i];
}
console.log(word);
```

(A) `tac`
(B) `c a t`
(C) `3`
(D) `cat`

13. App Lab. What is printed to the console?

```
var list = [1, 2, 3];
for (var i = 0; i < list.length; i++) {
  list[i] = list[i] * 2;
}
console.log(list);
```

(A) `[2, 4, 6]`
(B) `[1, 2, 3]`
(C) `[2, 2, 3]`
(D) `12`

14. App Lab. What is printed to the console?

```
var animals = ["cat", "zebra", "owl", "horse", "eel"];
var longNames = [];
for (var i = 0; i < animals.length; i++) {
  if (animals[i].length >= 5) {
    appendItem(longNames, animals[i]);
  }
}
console.log(longNames);
```

(A) `["cat", "owl", "eel"]`
(B) `["zebra", "horse"]`
(C) `["zebra"]`
(D) `[5, 5]`

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15. What is displayed as a result of executing the code segment?

```
list ← ["ant", "bee", "ant", "fly"]
target ← "ant"
index ← 0
i ← 1
REPEAT UNTIL (i > LENGTH(list))
{
    IF (list[i] = target)
    {
        index ← i
    }
    i ← i + 1
}
DISPLAY(index)
```

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

16. App Lab. What is printed to the console?

```
var times = [12, 9, 15, 7, 10];
var best = times[0];
for (var i = 1; i < times.length; i++) {
  if (times[i] < best) {
    best = times[i];
  }
}
console.log(best);
```

(A) 12
(B) 15
(C) 9
(D) 7

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17. App Lab. A program imports the table `"Rainfall"` shown below.

Month	Inches
March	4
April	6
May	5
June	1

What is printed to the console?

```
var inches = getColumn("Rainfall", "Inches");
var total = 0;
for (var i = 0; i < inches.length; i++) {
  total = total + inches[i];
}
console.log(total / inches.length);
```

(A) `16`
(B) `4`
(C) `5`
(D) `6`

18. App Lab. A program imports the table `"Games"` shown below.

Title	Genre	Rating
Sky Race	racing	4.5
Block Town	puzzle	3.8
Deep Dive	adventure	4.7
Gem Swap	puzzle	4.2
Moon Run	racing	3.9

What is printed to the console?

```
var titles = getColumn("Games", "Title");
var genres = getColumn("Games", "Genre");
var ratings = getColumn("Games", "Rating");
var picks = [];
for (var i = 0; i < titles.length; i++) {
  if (genres[i] == "puzzle" || ratings[i] > 4.6) {
    appendItem(picks, titles[i]);
  }
}
console.log(picks);
```

(A) `["Block Town", "Gem Swap"]`
(B) `["Deep Dive"]`
(C) `["Block Town", "Deep Dive", "Gem Swap"]`
(D) `["Gem Swap"]`

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19. What is displayed as a result of executing the code segment?

```
evens ← 0
FOR EACH n IN [3, 8, 10, 7, 4, 5]
{
   IF (n MOD 2 = 0)
   {
      evens ← evens + 1
   }
}
DISPLAY(evens)
```

(A) 3
(B) 22
(C) 6
(D) 2

20. What is displayed as a result of executing the code segment?

```
result ← []
FOR EACH n IN [1, 2, 3, 4]
{
   INSERT(result, 1, n)
}
DISPLAY(result)
```

(A) [1, 2, 3, 4]
(B) [1]
(C) [4]
(D) [4, 3, 2, 1]

21. App Lab. What is printed to the console?

```
var list = [8, 3, 6, 1, 9];
while (list.length > 2) {
  removeItem(list, 0);
}
console.log(list);
```

(A) [8, 3]
(B) [1, 9]
(C) []
(D) [6, 1, 9]

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22. Which code segments display `1 2 3 4 5`?

(Select two answers.)

(A)
```
n ← 1
REPEAT 5 TIMES
{
   DISPLAY(n)
   n ← n + 1
}
```

(B)
```
n ← 0
REPEAT 5 TIMES
{
   DISPLAY(n)
   n ← n + 1
}
```

(C)
```
n ← 0
REPEAT UNTIL (n = 5)
{
   n ← n + 1
   DISPLAY(n)
}
```

(D)
```
n ← 1
REPEAT UNTIL (n = 5)
{
   DISPLAY(n)
   n ← n + 1
}
```

23. App Lab. This code should print every name, but it also prints `undefined`.

```
var names = ["Ivy", "Jo", "Kai"];
for (var i = 0; i <= names.length; i++) {
  console.log(names[i]);
}
```

Which change fixes the problem?

(A) Change `var i = 0` to `var i = 1`
(B) Change `i <= names.length` to `i < names.length`
(C) Change `i++` to `i = i + 2`
(D) Change `names[i]` to `names[i + 1]`

24. This code segment is intended to display the sum of the values in `list`, but it displays only the last value.

```
1  FOR EACH n IN list
2  {
3      sum ← 0
4      sum ← sum + n
5  }
6  DISPLAY(sum)
```

Which change makes it work as intended?

(A) Change line 4 to `sum ← n`
(B) Move line 6 inside the loop
(C) Move line 3 to before line 1
(D) Change line 1 to `FOR EACH n IN sum`

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25. App Lab. A program stores names in `names` and matching scores in `scores`, so that `scores[i]` belongs to `names[i]`. The program runs `removeItem(names, 2);` but does not change `scores`. What is the most likely problem?

(A) `names` will now have more elements than `scores`.
(B) Both lists will be emptied.
(C) From index 2 on, names and scores will no longer match up.
(D) There is no problem; the lists stay matched automatically.

26. App Lab. What is printed to the console?

```
var nums = [5, 9, 2, 8, 6];
for (var i = 0; i < 3; i++) {
  console.log(nums[i]);
}
```

(A) `5 9 2`
(B) `5 9 2 8 6`
(C) `9 2 8`
(D) `2 8 6`

27. App Lab. A program simulates a basketball player taking 50 shots.

```
var made = 0;
for (var i = 0; i < 50; i++) {
  if (randomNumber(1, 10) <= 3) {
    made = made + 1;
  }
}
```

Which value of `made` is *not* possible after the code runs?

(A) `0`
(B) `15`
(C) `50`
(D) `60`

28. Which statements about lists are true?

(Select two answers.)

(A) In App Lab, the first element of a list is at index 0.
(B) In AP pseudocode, the first element of a list is at index 0.
(C) In AP pseudocode, the last element of `list` is `list[LENGTH(list)]`.
(D) In App Lab, the last element of `list` is `list[list.length]`.

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29. App Lab. What is printed to the console?

```
var words = ["hi", "hello", "hey"];
var total = 0;
for (var i = 0; i < words.length; i++) {
  total = total + words[i].length;
}
console.log(total);
```

(A) `3`
(B) `hihellohey`
(C) `10`
(D) `5`

30. App Lab. Which loops run their body exactly 5 times?

(Select two answers.)

(A) `for (var i = 0; i < 5; i++)`
(B) `for (var i = 0; i <= 5; i++)`
(C) `for (var i = 1; i <= 5; i++)`
(D) `for (var i = 5; i > 1; i-)`

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