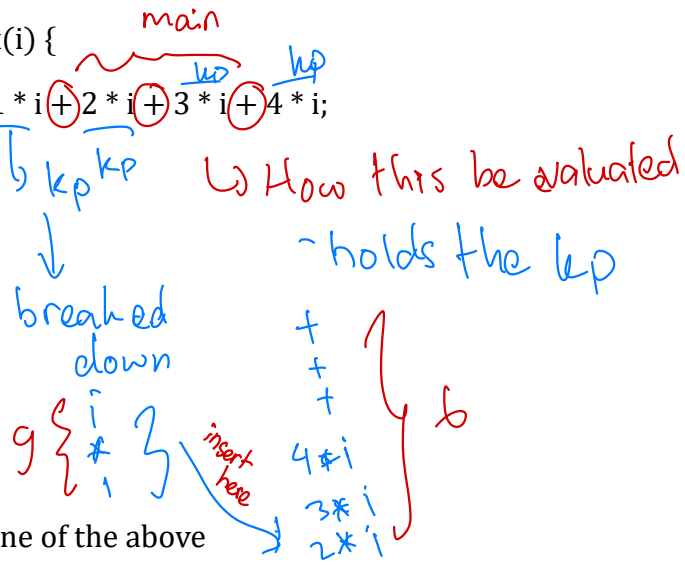
1. During the evaluation of this program, what is the largest number of items on the control?

```
function x(i) {
  return 1 * i + 2 * i + 3 * i + 4 * i;
}
x(2);
```

A) 5
B) 6
C) 8
D) 9
E) None of the above



2. Refer to the same function as above. Which of the following shows a correct order of the **control** at some point of time during the execution of the program. If you think the control is the one that appears on the top, then the arguments are from left to right. If you think it's the one on the left, then the arguments appear from top to bottom.

A) +, 4*i, +, *, i, 3
B) 6, 3, 2, 1
C) 6, 2, 4
D) +, 1*i, +, 2*i
E) None of the above

3. Which of the following statements are false?

I. A closure refers to a function object.

II. Primitive values are pointed to from ~~stash and frames~~ global frame.

III. Primitive values do not carry identity

A) I only
B) II only
C) I and III only
D) III only
E) None of the above options

4. Which of the following statements are true?

I. A pop instruction removes the next item on the stash ✓

II. A pop instruction removes the next item on the control

III. Operators pop operands from the stash and push results back onto the stash ✓

A) I only
B) I and III only
C) II only
D) II and III only
E) All of the above
F) None of the above options are correct.

5. Which of the following are true about the closure instruction?

I. Closure instruction will only be on the control, it will NEVER ✗ be on the stash.

II. If a closure instruction is at the front of the stash, a call instruction from the control will remove the closure instruction from the stash. ✓ (to be precise, assign)

III. Closure instruction is used to store a pair in the stash. ✗

A) I only
B) II only
C) I and II only
D) I, II and III
E) None of the above

6. Which of the following will not produce a pop instruction?

A) const a = 0; → to pop the 0 on stash → once udah masuk, need to pop
B) 1 + 1; → pop
C) 1 + 1; 2 + 2;
D) function a() { return 0; } → pop to clear closure from stash
E) None of the above

7. Which of the instructions are not used in the following program?

let x = 0;

while (x < 10) {

const y = 1; → pop, assign

x = x + y;

env

}

x;

A) pop
B) env
C) asgn
D) closure → cz no fn
E) None of the above

8. Which of the following programs will use the env instruction?

I. let x = 0; { const x = x + 1; }

II. function x(y) { const z = 0; return y + z; }

III. const x = 0; if (x === 0) { const y = 1; } else { } → goes here, so have value to hold in the env

IV. const x = 0; if (x !== 0) { const y = 1; } else { } → no environment bc logsg return false, which has no value, so immediately go to undefined.

A) I only
B) I, II and III only
C) I, III and IV only
D) I and III only
E) None of the above

Answers (I think):

1. D
2. A
3. B
4. B
5. B
6. B
7. D
8. D