1. Graph Theory
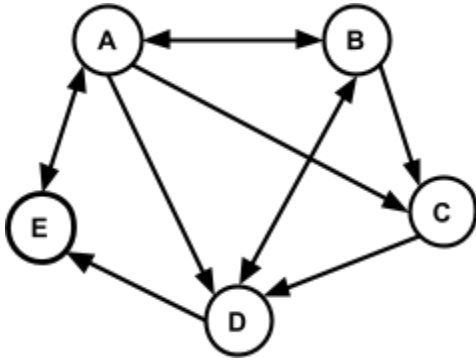
What is the shortest path length that will have more than one path between two vertices in the following directed graph?
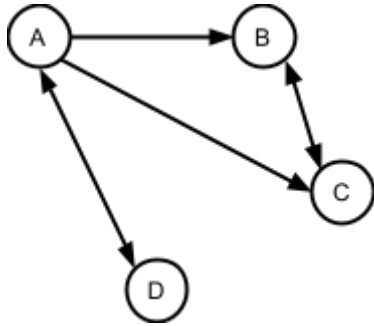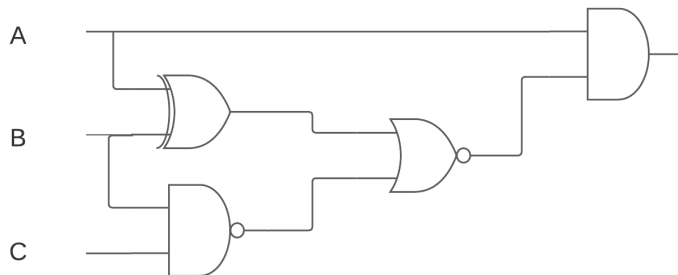

A. 1
B. 2
C. 3
D. 4
E. 5

2. Graph Theory

How many cycles are there in the following directed graph?

A. 5
B. 7
C. 9
D. 10
E. 12

3. Digital Electronics

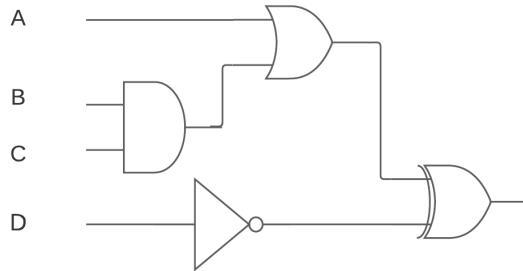Simplify the Boolean expression of this digital circuit.

A. $A\,B\,C$
B. $\overline{A}\,B\,C$
C. $A\,\overline{B}\,C$
D. $A\,B\,\overline{C}$
E. $\overline{ABC}$

4. Digital Electronics

How many ordered quadruples make the following digital circuit TRUE?

A. 0
B. 4
C. 8
D. 12
E. 16

5. Assembly Language

What is printed when the following program is executed?

```
N      DC      5
       LOAD    N
       STORE   F
       SUB     =1
TOP    STORE   B
       LOAD    F
       MULT    B
       STORE   F
       LOAD    B
       SUB     =1
       BE      OUT
       LOAD    B
       SUB     =1
       BU      TOP
OUT    PRINT   F
       END
```

A. 15
B. 30
C. 60
D. 120
E. 240