

Temă

Inteligență Artificială

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1 Subiectul I

1.1 A

La inițializare, lista open va conține nodul de start (a), iar lista closed va fi vidă.

```
1 open = [Node('a')]
2 closed = []
```

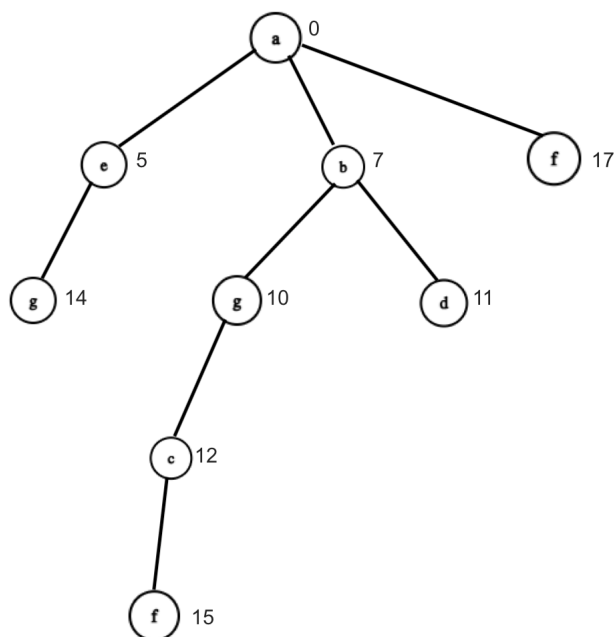
Descrierea iterațiilor:

```
1 # Iteratia 1
2 open = [
3     Nod('e', g=5, f=14, parinte='a'),
4     Nod('b', g=7, f=15, parinte='a'),
5     Nod('f', g=17, f=17, parinte='a')
6 ]
7 closed = [Nod('a', g=0, f=0)]
8 # Iteratia 2
9 open = [
10     Nod('b', g=7, f=15, parinte='a'),
11     Nod('f', g=17, f=17, parinte='a'),
12     Nod('g', g=14, f=19, parinte='e')
13 ]
14 closed = [
15     Nod('a', g=0, f=0),
16     Nod('e', g=5, f=14, parinte='a')
17 ]
18 # Iteratia 3
19 open = [
20     Nod('g', g=10, f=15, parinte='b'),
21     Nod('d', g=11, f=16, parinte='b'),
22     Nod('f', g=17, f=17, parinte='a')
23 ]
24 closed = [
25     Nod('a', g=0, f=0),
26     Nod('e', g=5, f=14, parinte='a'),
27     Nod('b', g=7, f=15, parinte='a')
28 ]
29 # Iteratia 4
30 open = [
31     Nod('c', g=12, f=15, parinte='g'),
32     Nod('d', g=11, f=16, parinte='b'),
33     Nod('f', g=17, f=17, parinte='a')
34 ]
35 closed = [
36     Nod('a', g=0, f=0),
37     Nod('e', g=5, f=14, parinte='a'),
38     Nod('b', g=7, f=15, parinte='a'),
39     Nod('g', g=10, f=15, parinte='b')
40 ]
41 # Iteratia 5
42 open = [
43     Nod('f', g=15, f=15, parinte='c'),
44     Nod('d', g=11, f=16, parinte='b')
45 ]
46 closed = [
47     Nod('a', g=0, f=0),
48     Nod('e', g=5, f=14, parinte='a'),
49     Nod('b', g=7, f=15, parinte='a'),
50     Nod('g', g=10, f=15, parinte='b'),
51     Nod('c', g=12, f=15, parinte='g')
52 ]
```

Concluzie: Drumul de cost minim va fi $a \rightarrow b \rightarrow g \rightarrow c \rightarrow f$, cu costul **15**.

1.2 B

Arborele asociat parcurgerii:



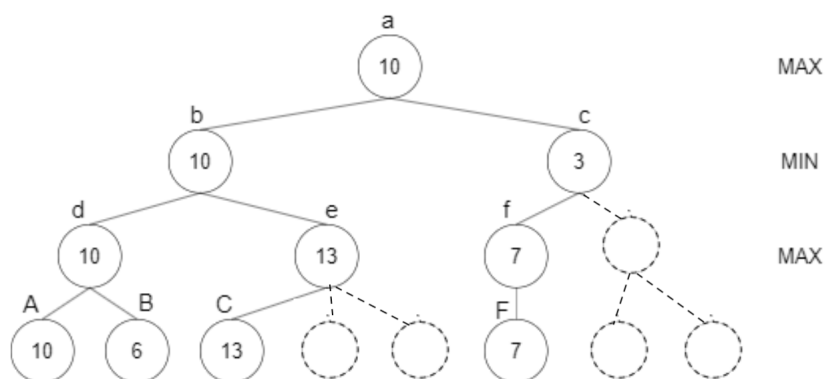
2 Subiectul II

2.1 A

- Valoarea jocului: 10
- Variația principală: $a \rightarrow b \rightarrow d \rightarrow A$

2.2 B

Arborele rezultat prin aplicarea algoritmului Alpha-Beta:



Aplicând algoritmul Alpha-Beta pe arborele dat, vor fi retezate toate nodurile ce nu pot influența decizia finală, micșorând complexitatea algoritmului.