King Saud University	College of Computer and Information Sciences Department of Computer Science
CSC 361: Artificial intelligence	**Quiz 3 - Fall 2020**
Date: 23/11/2020	Duration: 30 minutes

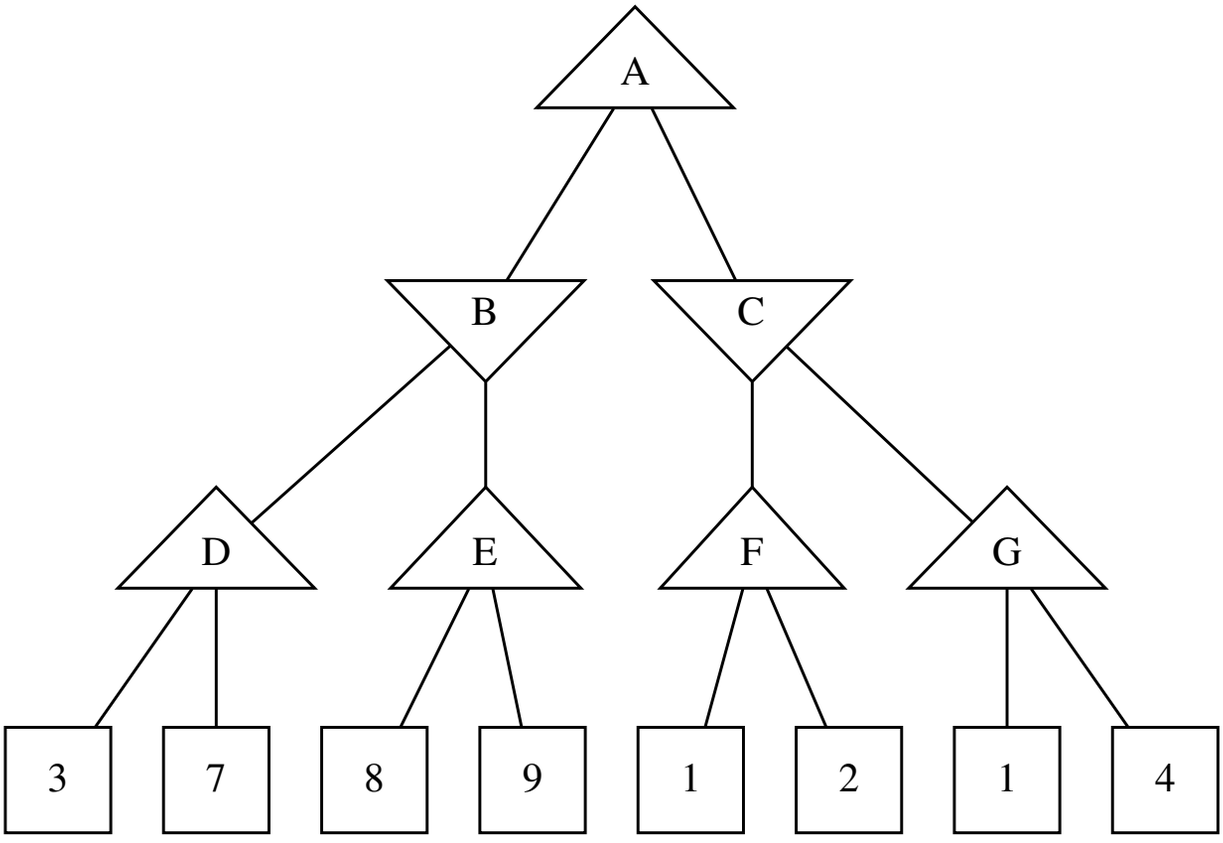

Figure 1:

After applying Alpha-Beta pruning to the tree in Figure 1. Show the **final** obtained value at each node and the **final** values of α and β at each node.

Question 1:

At node **A**:

(A) Alpha-Beta pruning returns 7 for this node, $\alpha = 7$ and $\beta = +\infty$.
(B) Alpha-Beta pruning returns 7 for this node, $\alpha = +\infty$ and $\beta = 7$.
(C) Alpha-Beta pruning returns 8 for this node, $\alpha = +\infty$ and $\beta = 8$.
(D) None of the above.

Question 2:

At node **B**:

(A) Alpha-Beta pruning returns 9 for this node, $\alpha = -\infty$ and $\beta = 9$.
(B) Alpha-Beta pruning returns 8 for this node, $\alpha = +\infty$ and $\beta = 8$.
(C) Alpha-Beta pruning returns 7 for this node, $\alpha = -\infty$ and $\beta = 7$.
(D) None of the above.

Question 3:

At node **D**:

(A) Alpha-Beta pruning returns 7 for this node, $\alpha = 7$ and $\beta = +\infty$.
(B) Alpha-Beta pruning returns 3 for this node, $\alpha = 3$ and $\beta = +\infty$.
(C) Alpha-Beta pruning returns 3 for this node, $\alpha = +\infty$ and $\beta = 3$.
(D) None of the above.

Question 4:

At node **E**:

(A) Alpha-Beta pruning returns 8 for this node, $\alpha = -\infty$ and $\beta = 8$.
(B) Alpha-Beta pruning returns 9 for this node, $\alpha = 9$ and $\beta = 7$.
(C) Alpha-Beta pruning returns 8 for this node, $\alpha = 8$ and $\beta = 7$.
(D) None of the above.

Question 5:

At node **C**:

(A) Alpha-Beta pruning returns 2 for this node, $\alpha = -\infty$ and $\beta = +\infty$.
(B) Alpha-Beta pruning returns 2 for this node, $\alpha = 7$ and $\beta = 2$.
(C) This node is pruned (it has not been checked).
(D) None of the above.

Question 6:

At node **F**:

(A) Alpha-Beta pruning returns 2 for this node, $\alpha = -\infty$ and $\beta = 7$.
(B) Alpha-Beta pruning returns 2 for this node, $\alpha = 7$ and $\beta = +\infty$.
(C) This node is pruned (it has not been checked).
(D) None of the above.

Question 7:

At node **G**:

(A) Alpha-Beta pruning returns 4 for this node, $\alpha = 7$ and $\beta = 2$.
(B) Alpha-Beta pruning returns 4 for this node, $\alpha = 7$ and $\beta = +\infty$.
(C) This node is pruned (it has not been checked).
(D) None of the above.

Question 8:

The links that have been pruned are:

(A) Link (B,E) and (A,C).
(B) Link (F,2).
(C) Link (E,9) and (C,G).
(D) None of the above.

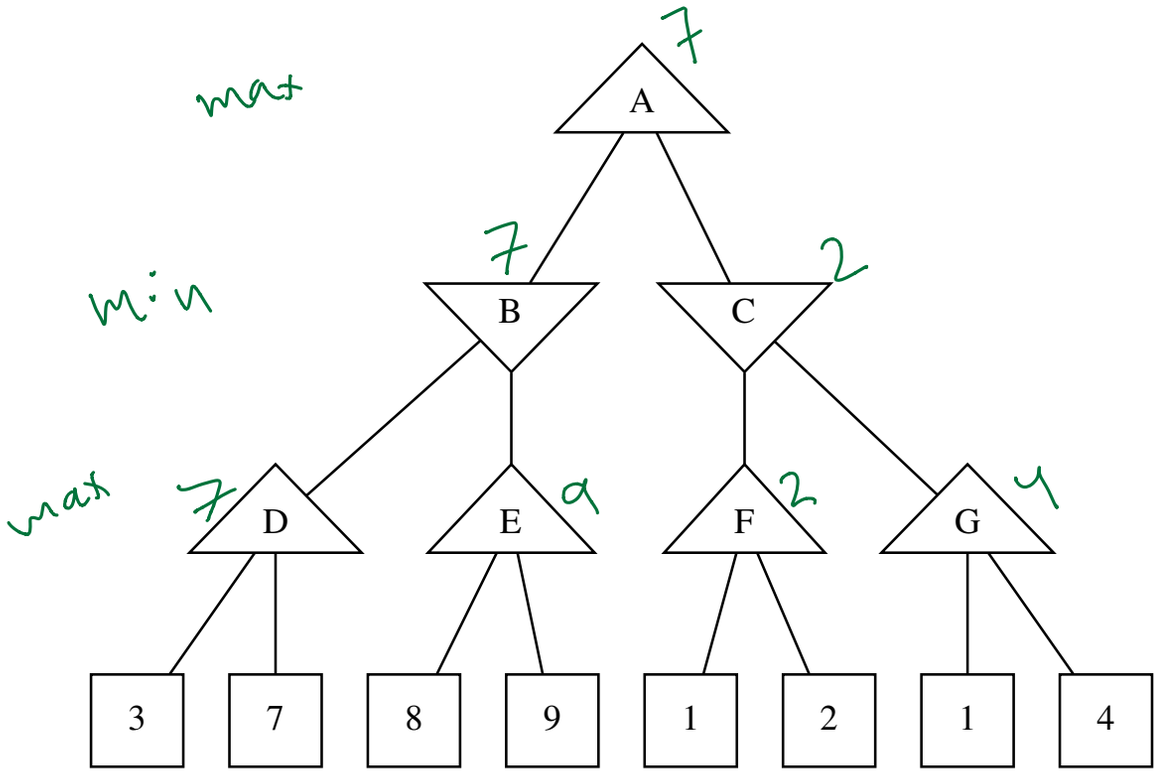

Figure 2:

After applying Minimax to the tree in Figure 2. Show the **final** obtained value at node **A,B,C**.

Question 9:

At node **A**:

(A) Minimax returns 7 for this node.
(B) Minimax returns 9 for this node.
(C) Minimax returns 2 for this node.
(D) None of the above.

Question 10:

At node **B**:

(A) Minimax returns 7 for this node.
(B) Minimax returns 9 for this node.
(C) Minimax returns 8 for this node.
(D) None of the above.

Question 11:

At node **C**:

(A) Minimax returns 4 for this node.
(B) Minimax returns 1 for this node.
(C) Minimax returns 2 for this node.
(D) None of the above.

Question 12:

(a) Minimax gives the same results as Alpha-Beta pruning.
(A) True (B) False

(b) MinimaxCutoff evaluates the leaf nodes using the utility function.
(A) True (B) False