Assignment 3

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

1.
For the DFG shown below, how much is the critical path?

(a) 35 ns. (b) 50 ns. (c) 25 ns. (d) 10 ns. (e) unit of time.

![DFG Diagram]

Figure 1: Figure for problem 1-4.

2.
The above DFG is derived by assigning the following resting values to the nodes:
\[ r(4) = 0, r(5) = 1, r(6) = 0, r(7) = 1, r(8) = 1. \]
Thus identify the correct expression from the options below:

(a) The above is a valid resting (b) the above is both a valid resting and 4 minimizes the critical path (c) the above is an invalid resting (d) the above does not minimize the critical path.

3.
The above DFG is restructured in two stages. In the first stage, we rewrite it by choosing:
\[ r(4) = 0, r(5) = 0, r(7) = 1, r(8) = 1, r(9) = 1. \]
Then, the first DFG is further restructured using:
\[ r(4) = 1, r(5) = 0, r(8) = 0, r(9) = 1. \]
The critical path of the resulting DFG will be:

(a) 20 ns. (b) 35 ns. (c) 20 ns. (d) 45 ns.

4.
In the above DFG, a signal source, say, Q, is connected to node R. The edge R has one delay. The DFG is now restructured by assigning resting values to the nodes, where, \( r(D) = 2 \). The delay in the edge R will now be:

(a) 1 unit (b) two units (c) 1 unit (d) 0 unit.

5.
The DFG shown below is restructured with:
\[ r(1) = 1, r(2) = 0, r(3) = 1, r(4) = 1, r(5) = 1, r(6) = 1, r(7) = 1. \]
If such node takes T as t, then, the critical path after restructuring will be:

(a) \( T \) (b) \( 2T \) (c) \( 2T \) (d) T.

Figure 2: Figure for problem 4-6.