▶ **Problem 11.5-6**

The building of a plastic model ship involves

- detaching and sorting out the pieces (D),
- gluing (G),
- painting (P),
- applying the decals (A).

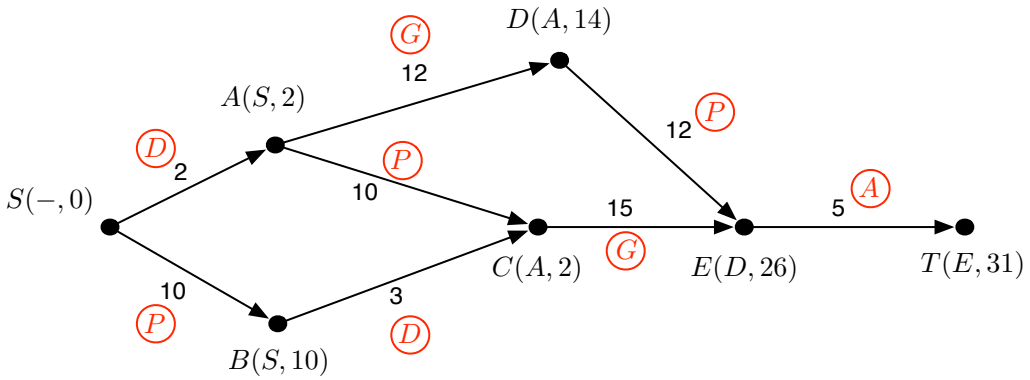
The decals must be applied last and the pieces must be detached and sorted before they are glued together. Detaching and sorting takes 2 units of time for unpainted pieces and otherwise 3 units of time. Gluing takes 12 units of time for unpainted pieces and 15 otherwise. Painting takes 10 units of time for pieces without glue; 12 otherwise. It takes 5 unit of time to apply the decals.

(a) What type of scheduling problem in this? Draw a network that describeds the possible route to completion of the model.

(b) Applying Dijkstra's algorithm (first version) to your network, discover the fastest way this ship can be assembled. How long will be take?

Solution. (a) since the time for each task depends on the tasks which have already been completed, this is a type I scheduling problem.

(b)



The ship can be assembled in 31 units of time along $SADET$, that is, by first detaching and sorting the pieces, then gluing, painting and applying the decals. □