

### Exercise on Critical Path Method :

A property developer wishes to renovate a house. To keep his costs to a minimum he likes to have only one worker working on each activity. The property renovation involves various tasks which he estimates will take one worker the times shown in the table below:

Activity	Time needed to complete
Substantial repairs to the roof	8 days
Internal structural work	4 days
Electrical work	7 days
Plumbing	6 days
Installing a new kitchen	3 days
Installing a new bathroom	4 days
Garden	5 days
Plastering	4 days
Internal decoration	5 days
Fitting carpets	1 day
Outside paintwork	5 days

The roof and structural work must be completed before any other activities (inside or outside) can commence. Once these are done, the external jobs can happen at any stage. However, inside the house, the plumbing and electrics must be completed before the plastering can be done. The plastering must be complete before the new kitchen and bathroom can be installed. Decoration can only happen once the kitchen and bathroom are in place, and carpets can only be fitted after decorating.

The property developer knows that to keep his budget on target, **all work needs to be completed in 6 weeks**. His team only works from **Monday to Friday**.

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**Questions :**

- **Can it be done?**
- **Which activities is it most important for the property developer to keep on track?**

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For simplicity let us assign letters to our activities:

- A – Roof

B – Structural work

C – Electrics

D – Plumbing

E – Kitchen

F – Bathroom
- G – Garden

H – Plastering

I – Decoration

J – Carpets

K – External paintwork

*Comment : Compared to the course, it corresponds to the stage : Identify the activity*

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- **Determine the Sequence of the Activities :**

Activity	A	B	C	D	E	F	G	H	I	J	K
Dependency	-	-	A,B	A,B	H	H	A,B	C,D	E,F	I	A,B
days	8	4	7	6	3	4	5	4	5	1	5