Precedence tables

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Using the display-project table, identify every activity that can start at time 0. [2 marks]

A school display project. Times are in days.

Activity	Duration	Immediate predecessors
A	4	None
B	3	None
C	5	A
D	4	A
E	2	B and D
F	3	C and E

A and B have 'None' in the predecessor column.

All other activities require at least one earlier activity.

Answer: A and B.

2. Using the display-project table, state the immediate predecessors and all indirect predecessors of F. [3 marks]

A school display project. Times are in days.

Activity	Duration	Immediate predecessors
A	4	None
B	3	None
C	5	A
D	4	A
E	2	B and D
F	3	C and E

F needs C and E.

C needs A; E needs B and D; D needs A.

A, B and D are earlier requirements but not immediate predecessors of F.

Answer: Immediate: C and E. Indirect: A, B and D.

3. A delivery A takes 1 day. Cutting B and cleaning C each follow A. Fitting D needs both B and C. Write just the predecessor column for A, B, C and D. [3 marks]

B and C each depend directly on delivery.

D needs both branches to finish.

Answer: A: none; B: A; C: A; D: B and C.

4. A table says A follows C, B follows A, and C follows B. Explain why this is not a workable project plan. [2 marks]

A waits for C, C waits for B, and B waits for A.

There is no starting activity to break the cycle.

Answer: It contains the cycle A → B → C → A, so no activity can begin.

5. Painting P follows priming R, which follows cleaning C. Should the immediate predecessors of P be C and R? Explain. [2 marks]

Cleaning is already required before priming.

Completing R therefore guarantees completion of C.

Answer: No; list R only.

6. Two independent jobs have no predecessors, but both need the same single crane. Does the precedence table alone guarantee that they can occur together? [2 marks]

Logical independence allows parallel scheduling in the basic model.

A shared crane is a resource constraint that must be modelled or scheduled separately.

Answer: No.