GEPM 375

# Project Planning and Construction Management

## To be discussed:

- Gantt Charts
- Stages of Development of Gantt chart
- Short comings and remedial measures
- Milestone chart
- Deficiencies of milestone charts
- Development PERT Network
- Advantages of Network Diagram

## Discussed in Previous Class:

- **Gantt Charts**
- **Stages of Development of Gantt chart**
- **Short comings and remedial measures**

# Milestone Charts
# Or Gantt Milestone Charts

## **Milestone Charts**:

- **Modification** of original Gantt Bar charts.

**What are the milestones?**

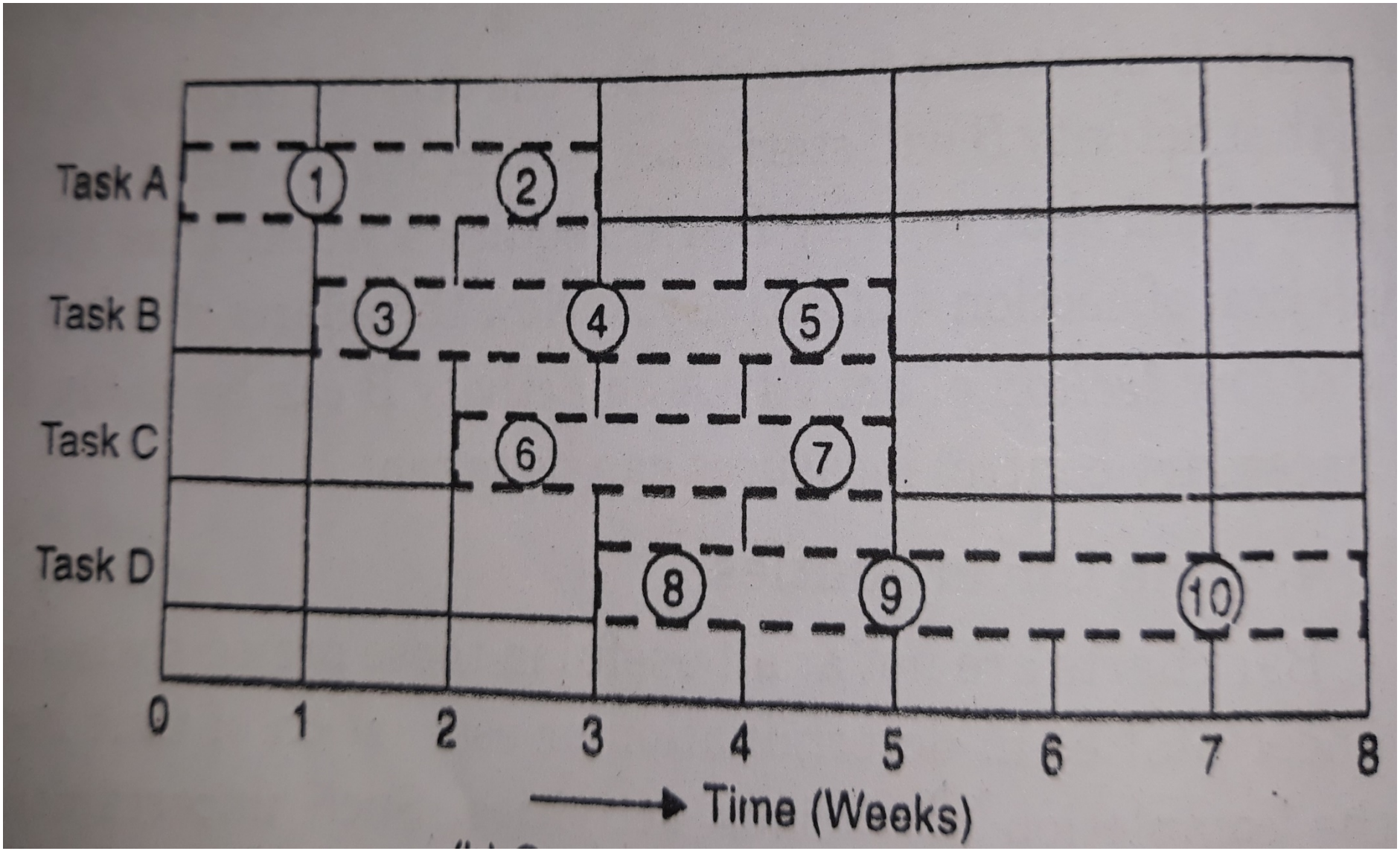
- **Milestones are Key events of main activity,** in which activity is represented by a bar.

- **Milestones are Specific points in time** which mark the completion of certain portions of the main activity.

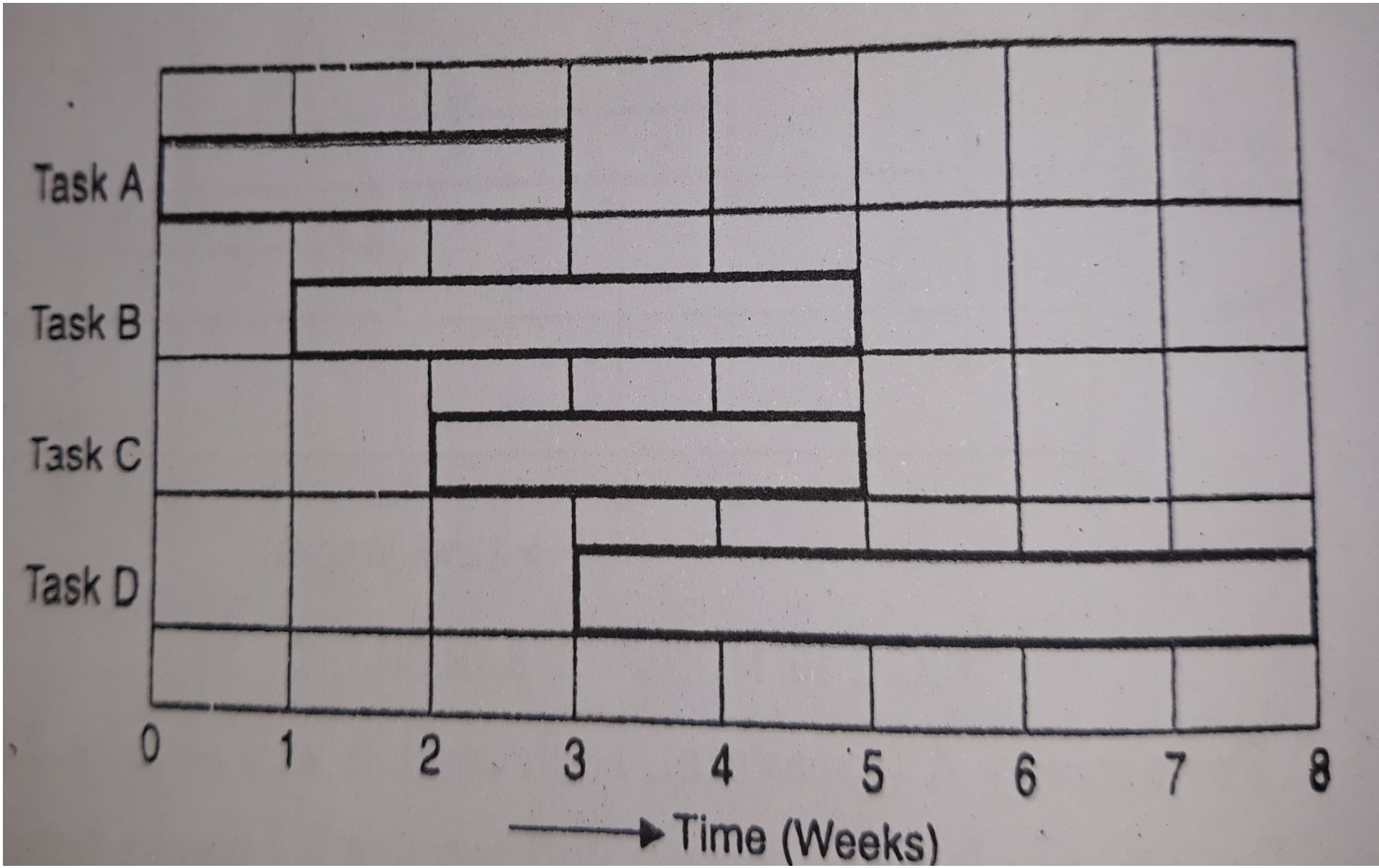
- Specific points can **easily be identified** over the main bar.

**Question:** What is milestone charts? How do you overcome the shortfall of Gantt Bar Charts in Milestone Charts?

# Gantt Milestone Charts



# Gantt bar Charts



# Gantt Milestone Charts

**Short fall of Gantt bar charts:**

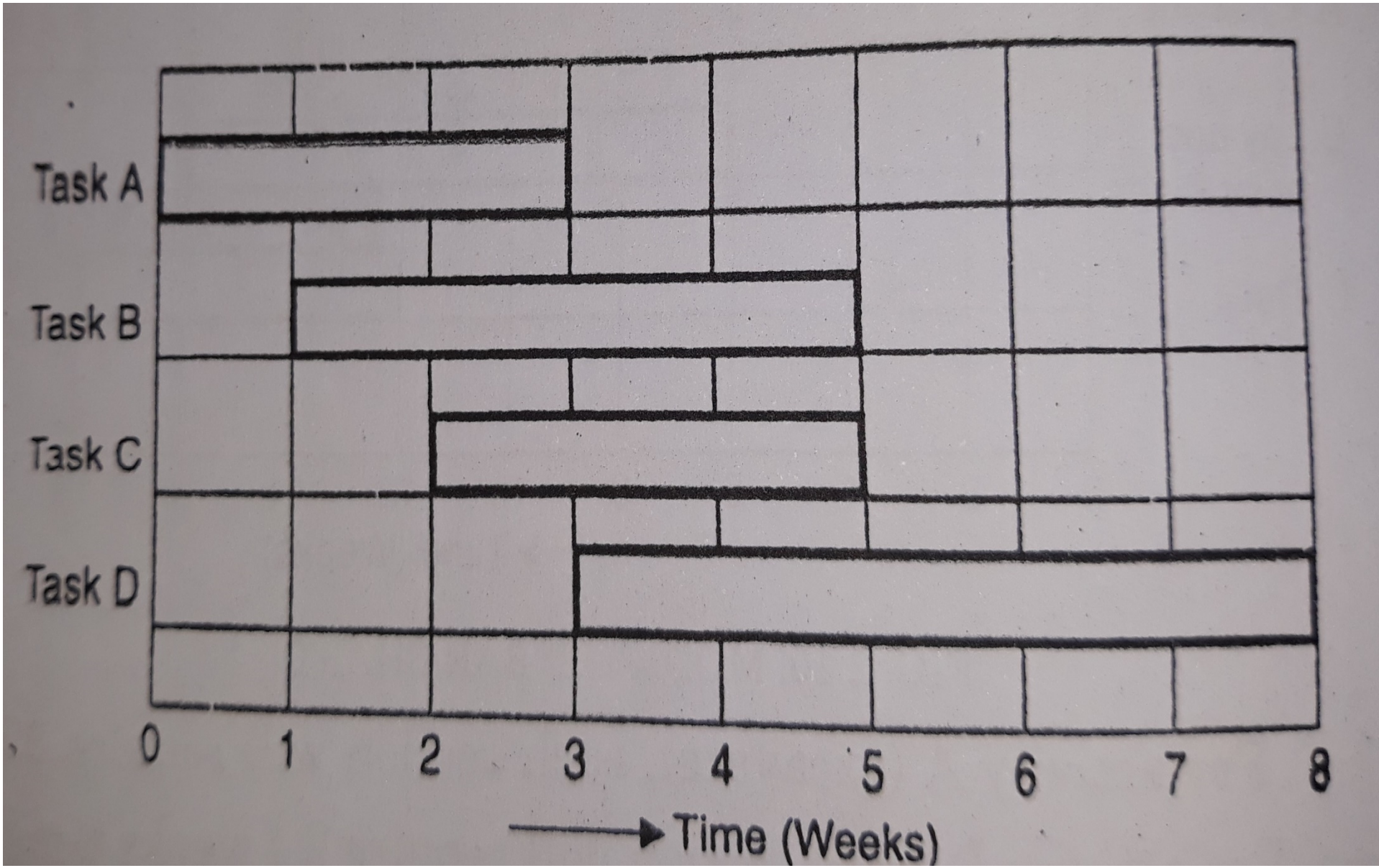
When a **particular activity, represented by a bar** on a Gantt chart, is **very long and lack of details**.

**How to Overcome?**

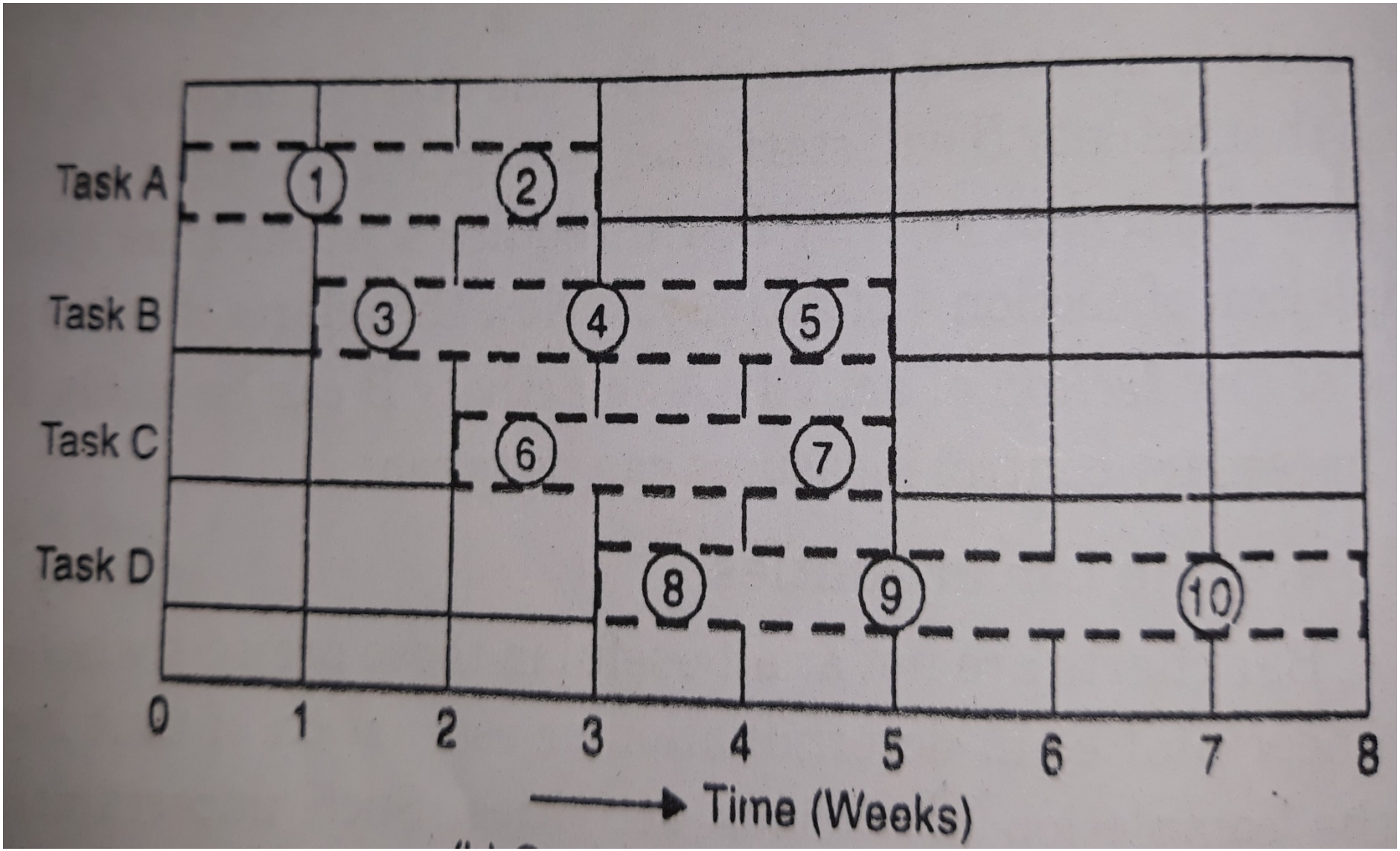
If the **Activity is broken** or subdivided into **number of sub activities,** then

- **Each of** sub activity can easily be **recognized** during progress of the project;
- **Controlling** can be easily be done;
- **Inter relationship** between other similar activities can easily be established.

# Gantt bar Charts



# Gantt Milestone Charts

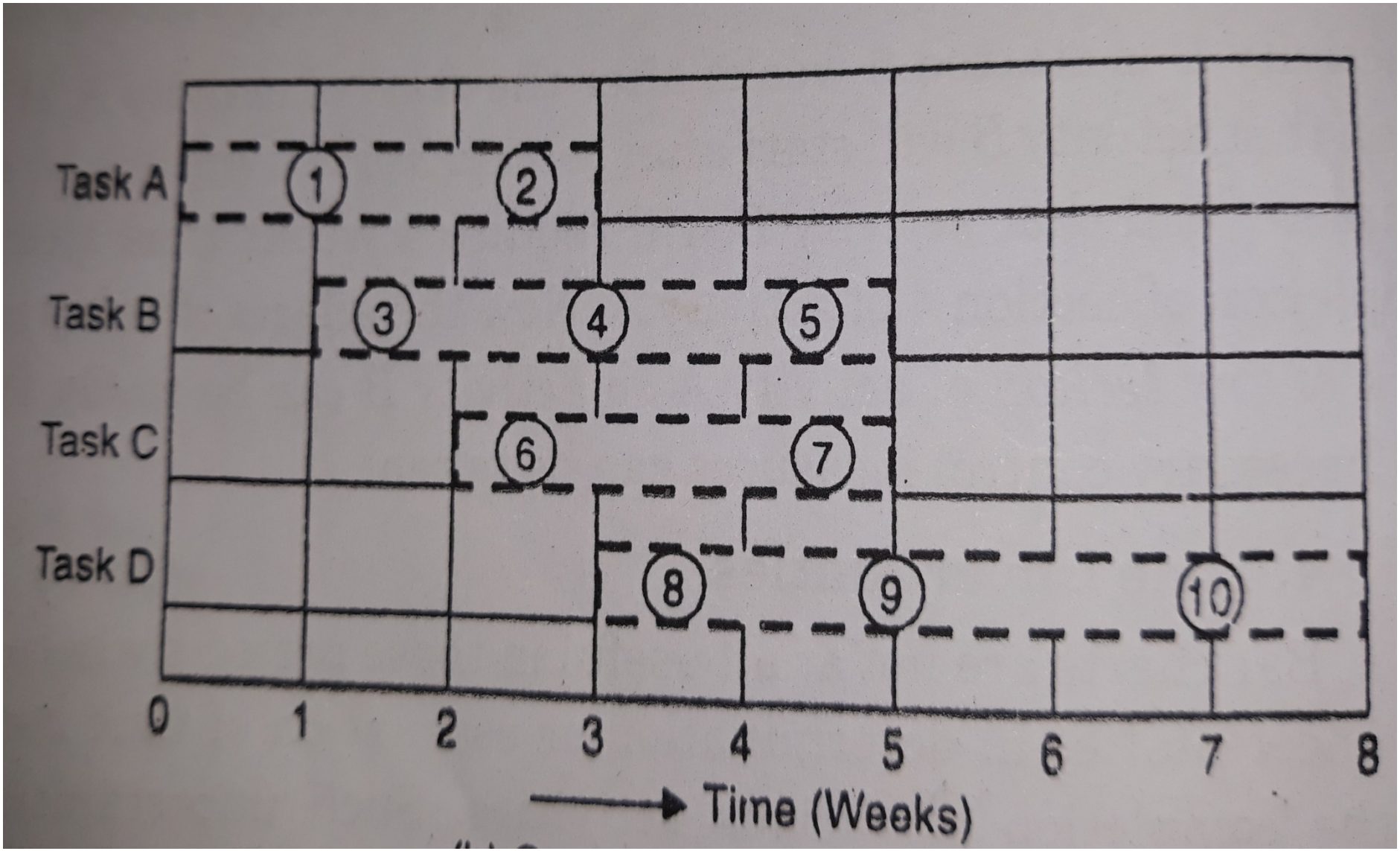


# Milestone Charts

- **Milestones**: B**eginning and the end of the of sub activities** of main tasks.
- Sub tasks **contains some specific points of time**, which can be recognized.
- Through the **specific points controlling** can be achieved.
- Each milestones are represented either by **square or circle and is serially marked.**

**Question:** What are the milestones in milestone charts in Project Management?

# Gantt Milestone Charts



# Gantt Milestone Charts

**Benefits:**

- **Controlling** can be better achieved.
- **Relationship** between two milestones within a task is revealed.

**Example:**

- **Task A->** Remove existing machine

  **Milestone 1**-dumping in store

  **Milestone 2**- final disposal

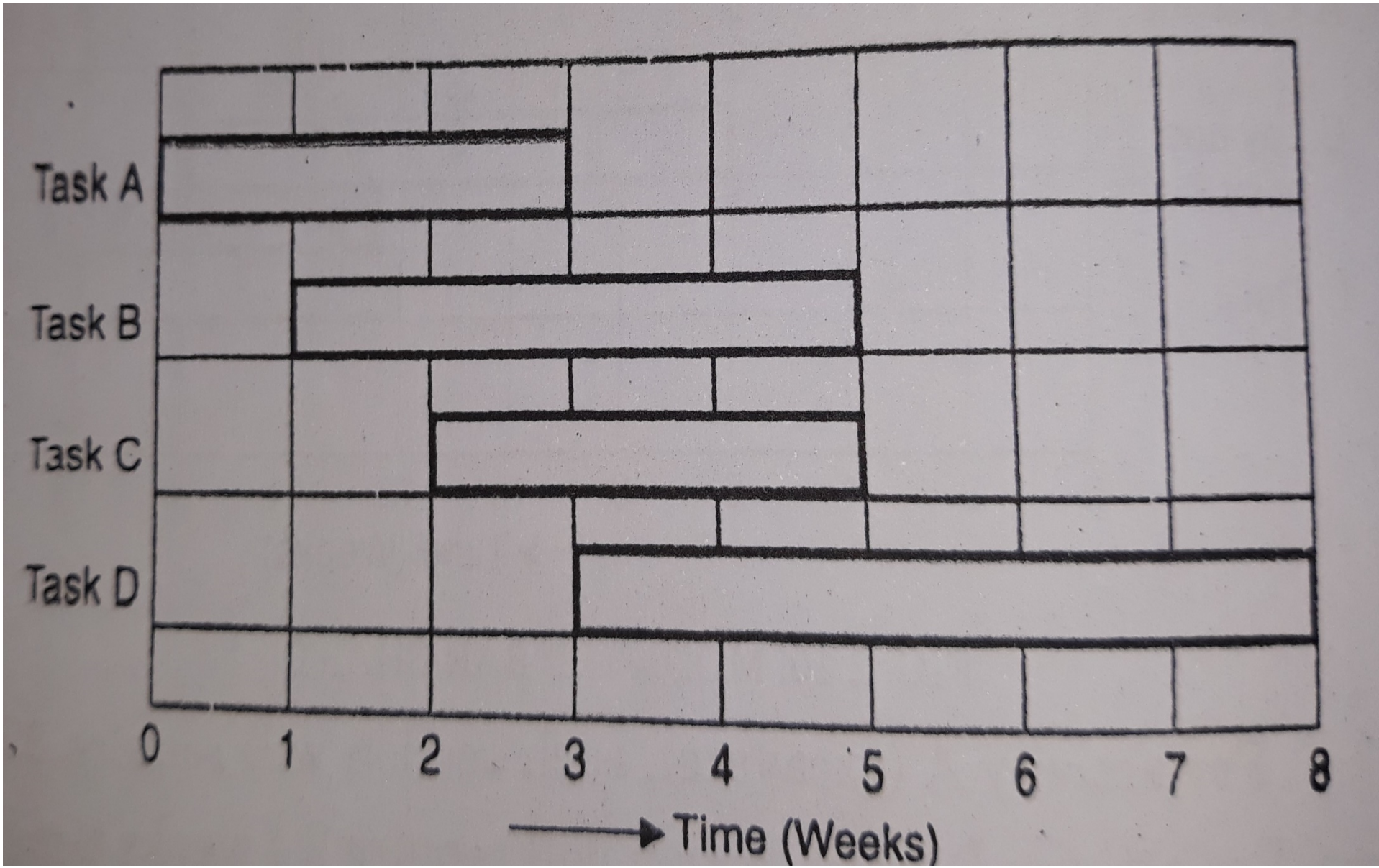
**Controlling and relationship.**

- Task B -> Await delivery of new machine

  **Milestone 3-** Tendering is complete

  **Milestone 4**- Work order issued

# Gantt bar Charts



# Gantt Milestone Charts

**Task A-> Remove existing machine**

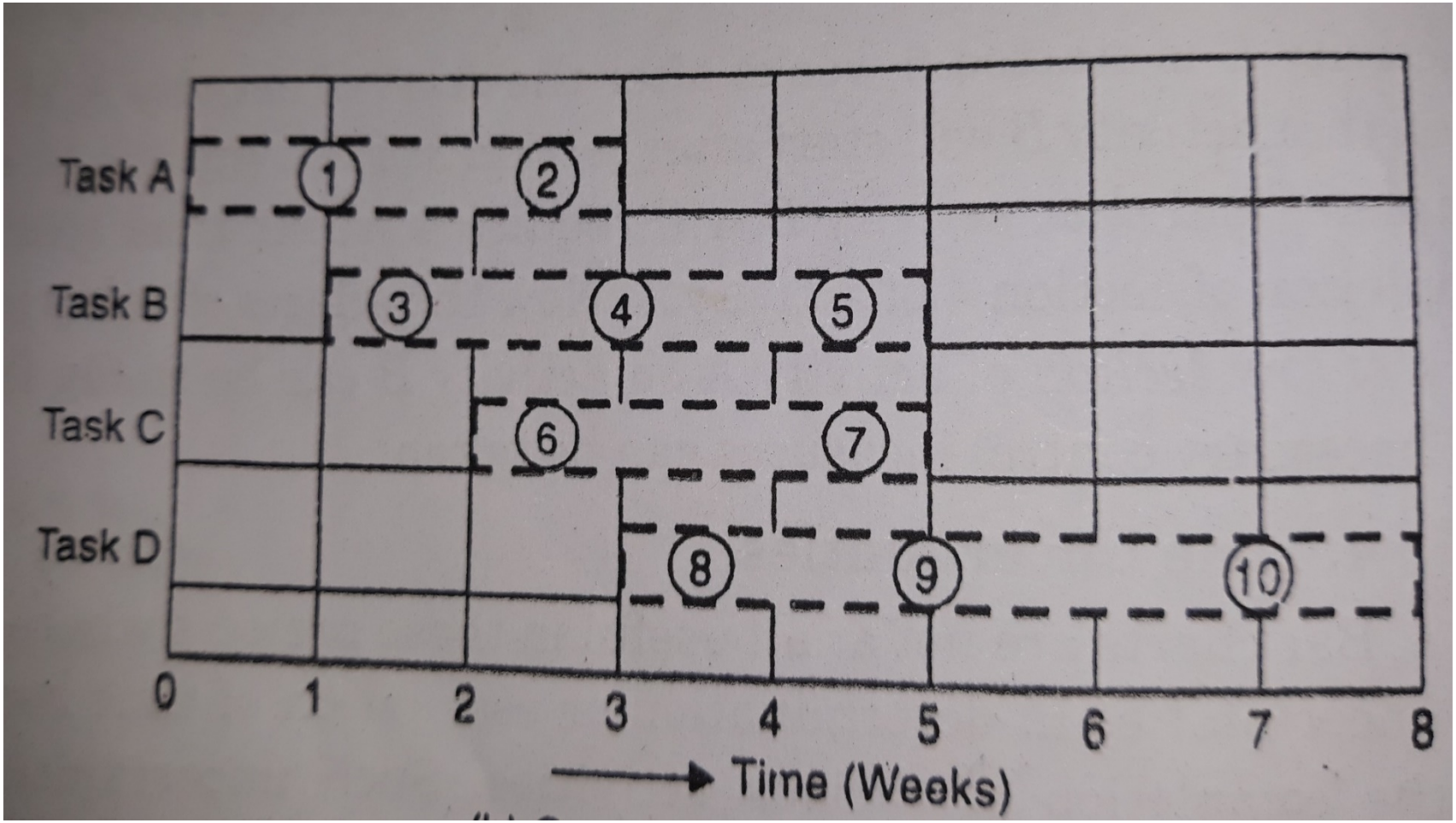
**Milestone 1**-dumping in store

**Milestone 2**- final disposal

Task B -> **Await delivery of new machine**

**Milestone 3-** Tendering is complete

**Milestone 4**- work order issued



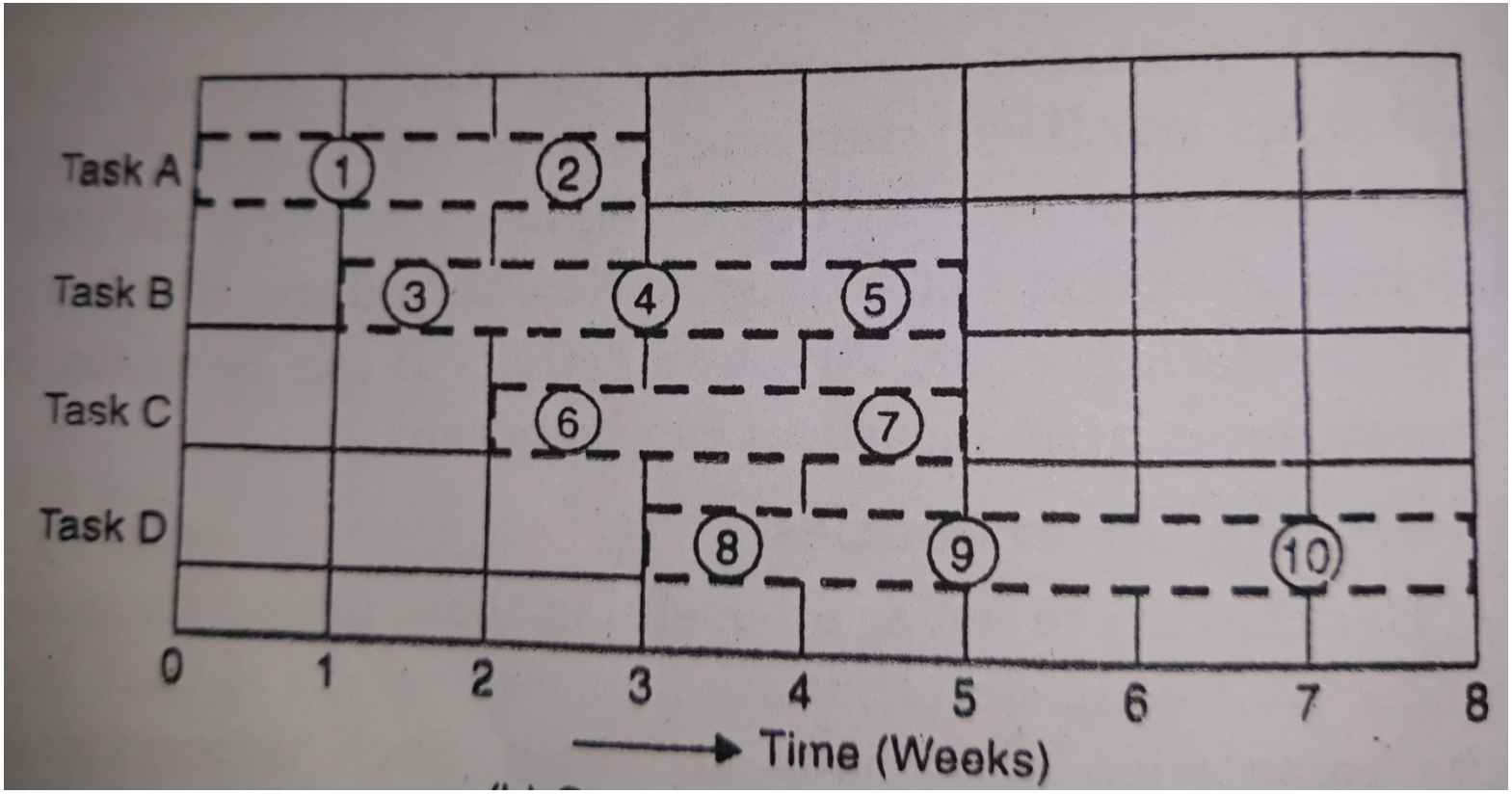

**Question:** Explain the benefits of using Gantt Milestone Charts in project management.

# Gantt Milestone Chart – Short Comings/Deficiencies

# Gantt Milestone Chart

## Short Comings /Deficiencies:

- **Does not indicate** whether **Milestone 6 can be started before Milestone 2 has been completed**.
- Whether **Milestones of Task C (6 & 7) are at all dependent on Milestones of Task A ( 1 & 2).**




**Question:** Briefly explain the short comings of Mile stone charts used in project management.

# Development of Network

**Development of PERT Network**:

- **Deficiencies of milestone charts-its inability to depict the relationship** between milestones of different tasks.
- Deficiency has been **removed effectively** by **developing the milestone chart into Network Diagram.**
- **Milestones are the Events along main tasks** and PERT Network is **event oriented network**.
- Resulting network diagram is called **PERT network**.

# Milestone Charts to PERT Network

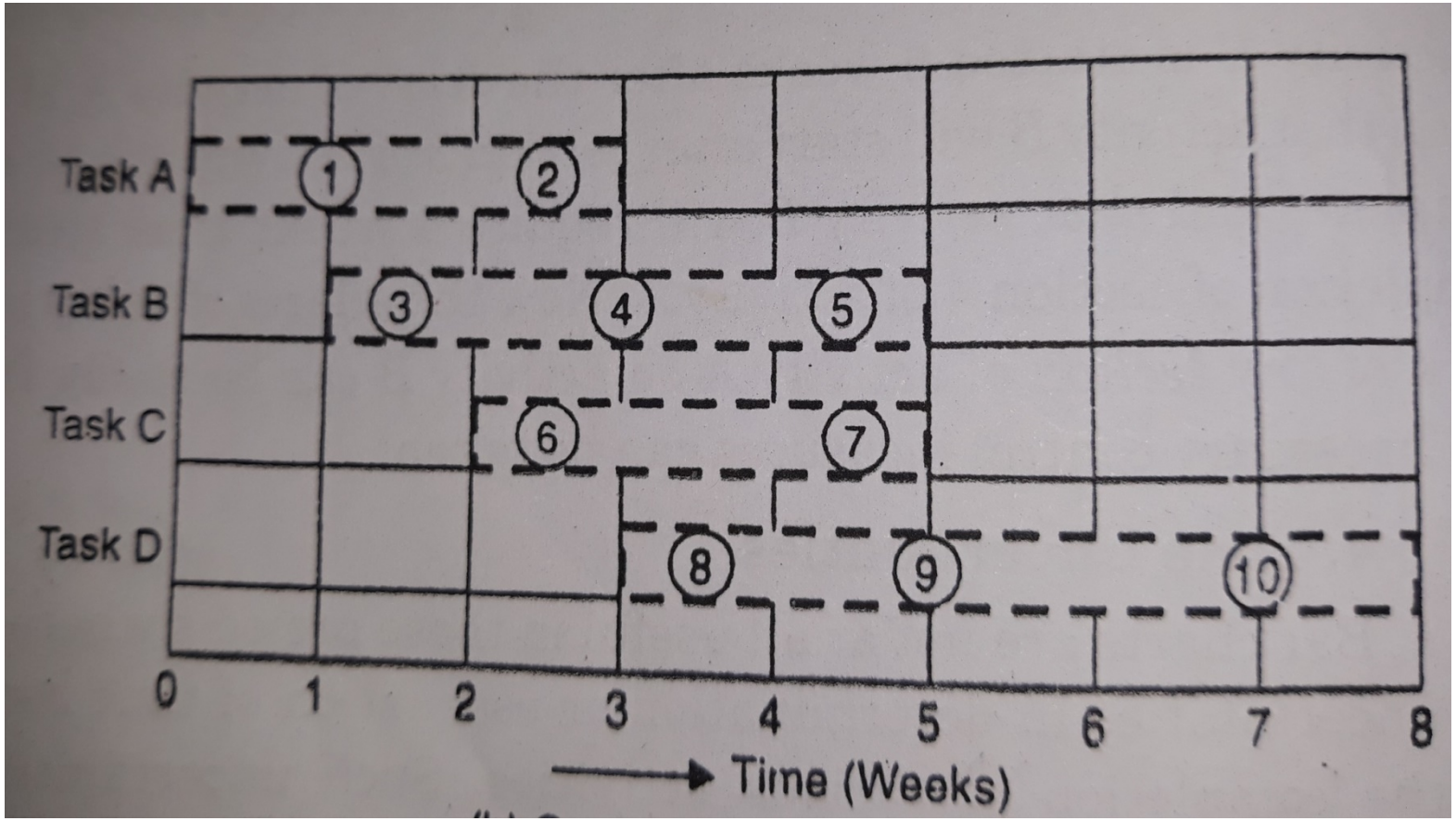
## Development/Formation of Network:

**Milestones charts with arrows**:

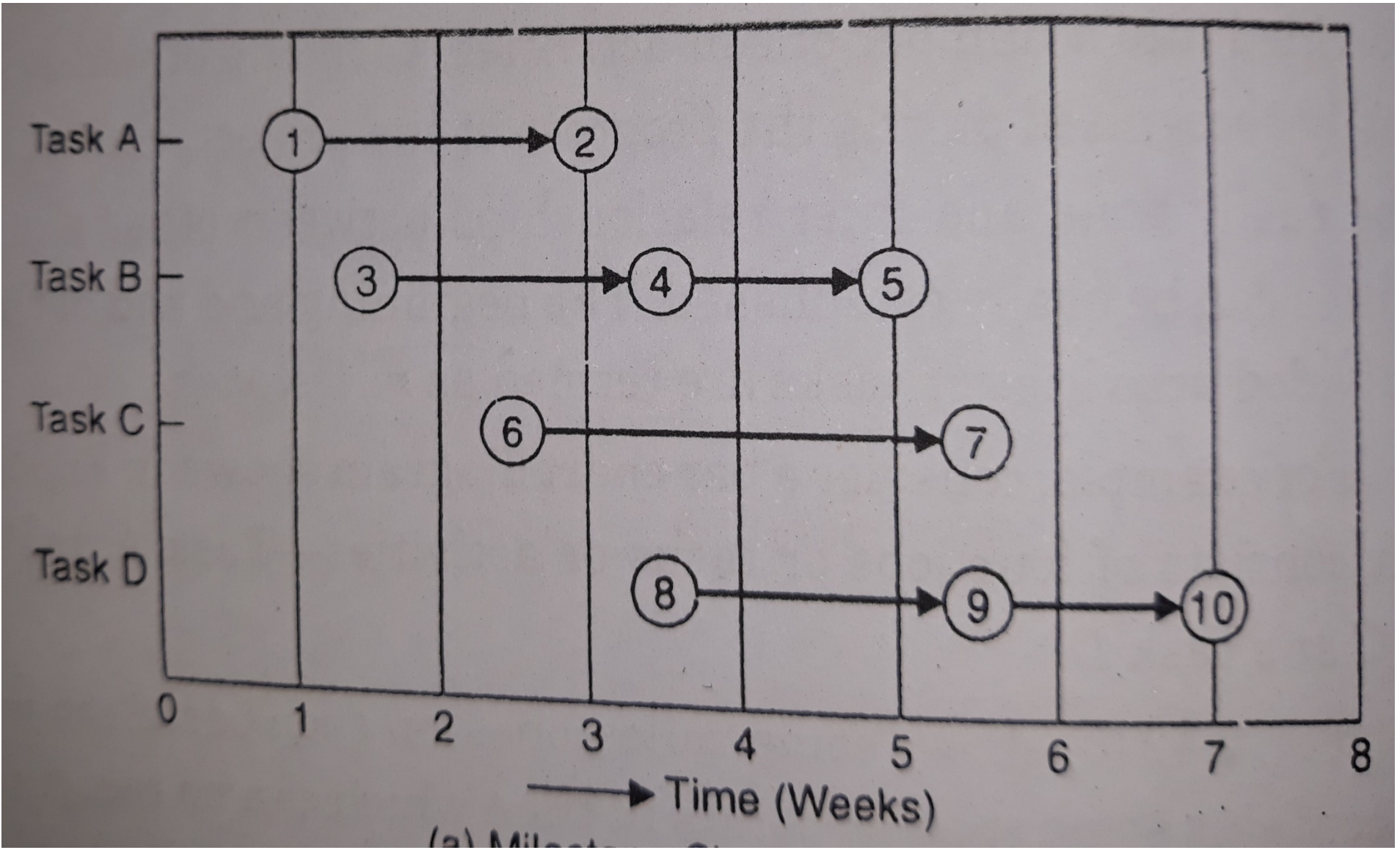
- **Milestones of each bar** have been **joined serially by arrows**, since **these have to be completed one after another serially**.

**Question**: Describe the development of PERT network from the Gantt Milestone Charts.

# Gantt Milestone Chart



# Milestone Charts with Arrows



# Milestone Charts to PERT Network

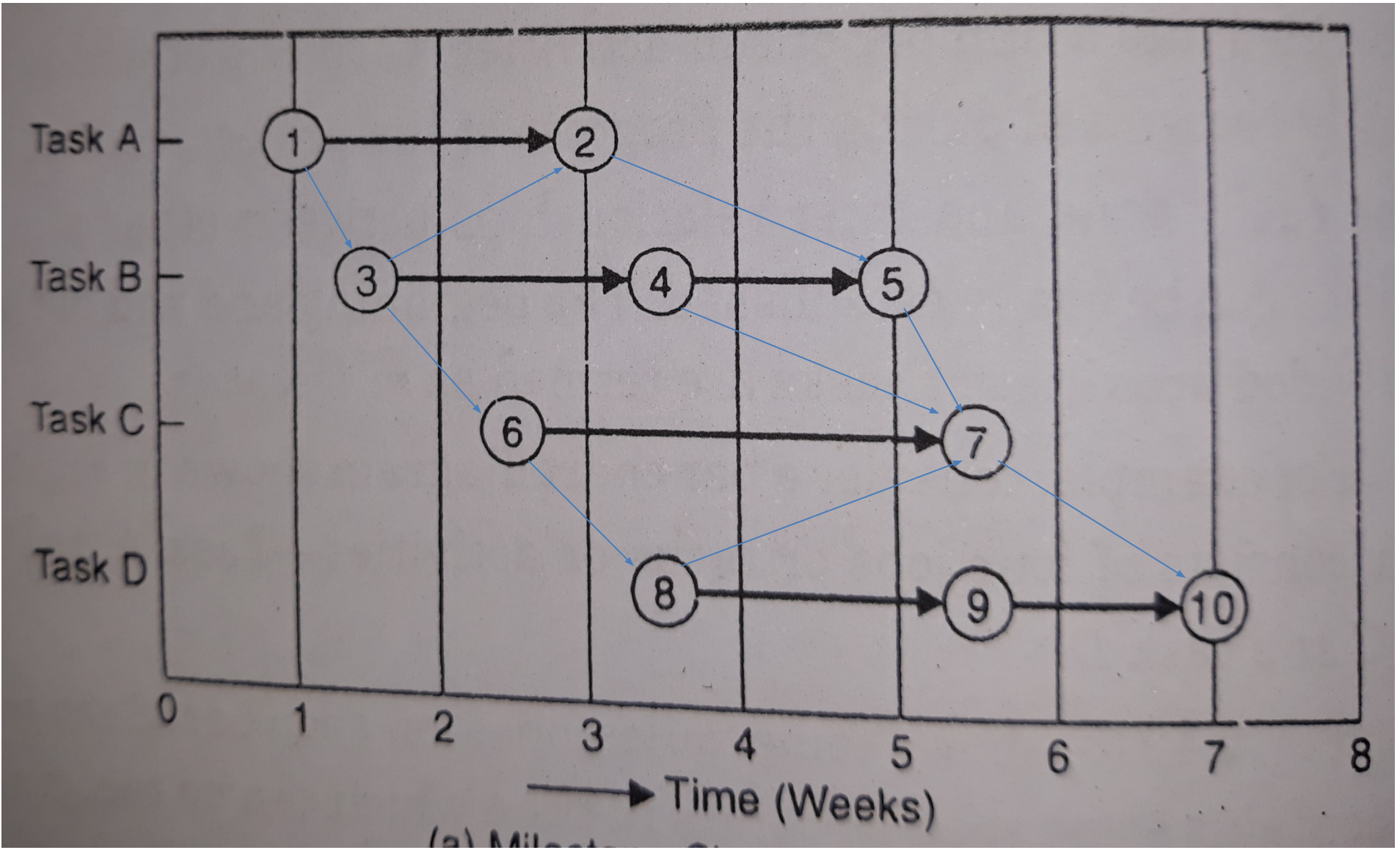
**Formation of Network (cont..):**

**Milestone Charts with Networks**:

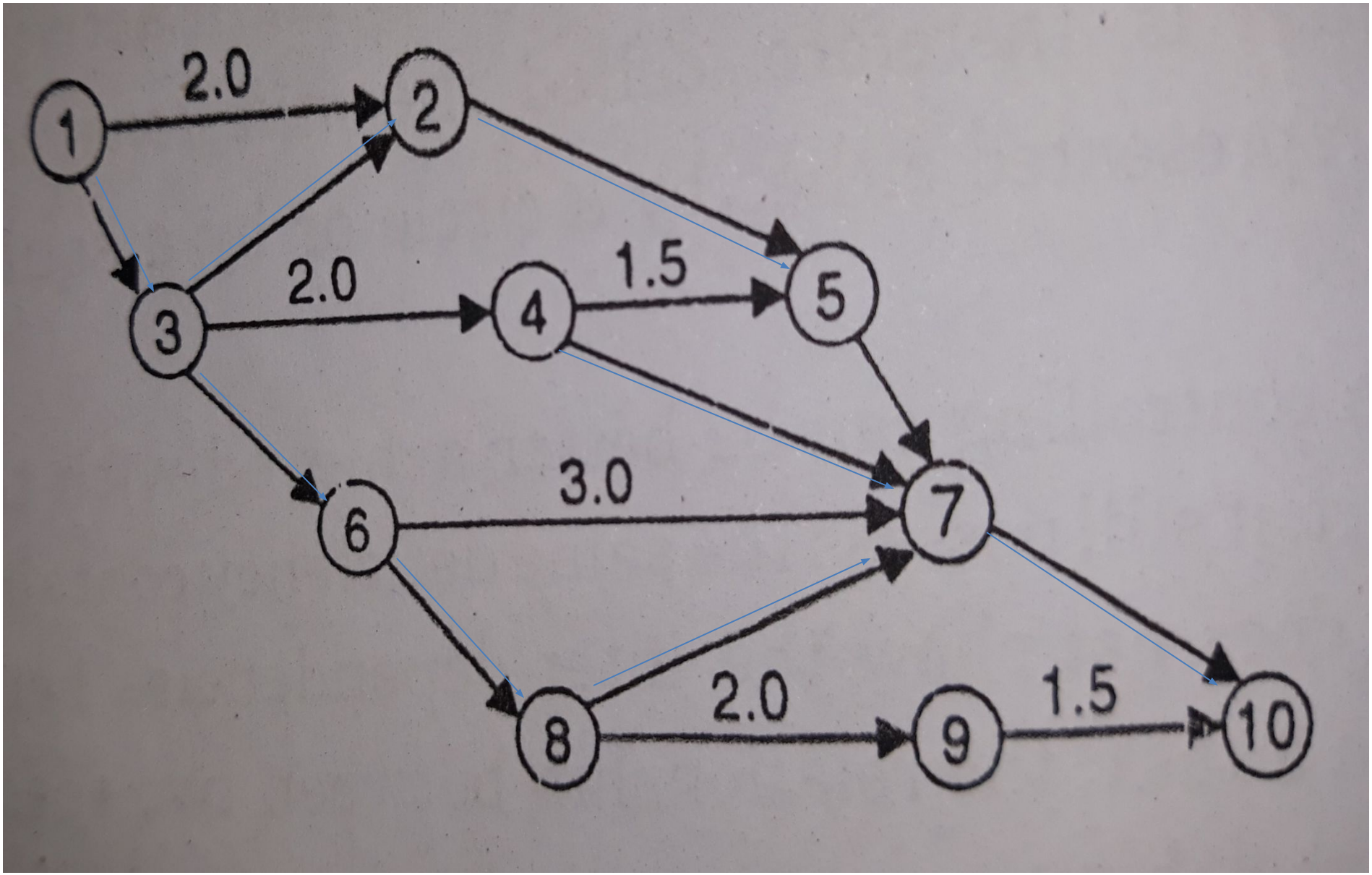
- **Network is achieved** by **joining those milestones of different bars (Tasks) which are interrelated**, by arrows.

- Shows the **necessary flow of works**.

# Milestone Charts with Arrows



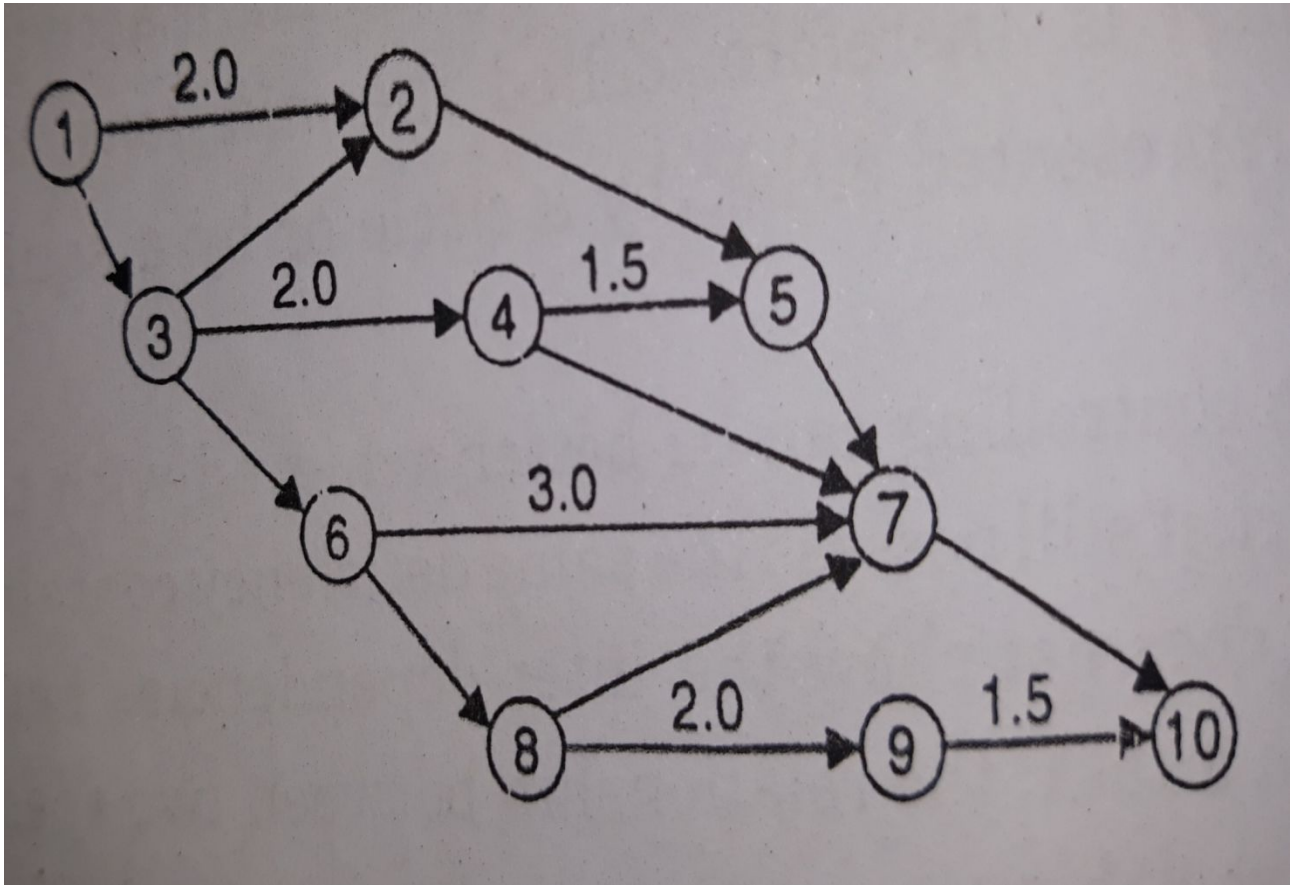
# PERT Network (Interrelation with Arrows)



# Network

**Explanation of Network:**

- **Milestone 4 is dependent on milestone 1** because: 4 cannot be started unless 3 is completed and 3 cannot be started unless 1 is completed.
- Similarly, **7 is dependent on 4, 5, 6 and 8.**



# Network

**Explanation of Network (cont..):**

- Thus **interrelationship** between and among all the milestones **can be established** in network diagram.
- **Tasks are omitted**, because milestones get interrelated.
- **Time scale is omitted**, because the time between the milestones (called events), are indicated on arrows between them.

# Network

**Advantages of network Diagram**:

- Shows the **interrelationships** between milestones (events).
- Designation of tasks becomes redundant and the **project is viewed as a whole**, consisting number of milestones (events) and not on a number of tasks.
- This helps very much in **controlling** the projects.

# Network

- Network can be **used even for highly complicated projects** consisting a large number of activities.

- It directly indicates the **time required in between two milestones or activities.** This is **helpful in rescheduling if required.**

Thank you