TOPIC	**CHAPTER 2: Project Planning**
TIME	2 hours
INSTRUCTION	1. This work should be done individually.
TASK	Answer **ALL** questions below.

Case Study:

Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA) has approved the development of CATS to automate attendance tracking for both staff and students.

The project will integrate IoT sensors, RFID cards, and facial recognition for real-time attendance validation. The ICTDU leads the project, working with vendors, faculty representatives, and student affairs officers.

The project manager, Ms. Nasia, has completed the project scope and WBS. However, during the planning stage, she faces challenges in scheduling such that certain tasks overlap, while others depend on the completion of prior activities.

The estimated tak list is as follows:

Activity	Description	Predecessor(s)	Optimistic(o)	Most Likely(r)	Pessimistic(p)
A	Requirement Analysis	-	2	4	6
B	System Architecture & Design	A	3	5	9
C	Database Design	A	2	3	5
D	Hardware Integration Setup	B, C	3	4	5
E	Application Development	B	4	6	10
F	Interface & Module Integration	D, E	2	3	4
G	System Testing & QA	F	3	5	9
H	User Training & Deployment	G	1	2	3

Question:

1. Using the above data:

   - Calculate the Expected Time (ET) for each activity.

   - Draw the Network Diagram showing all dependencies.

2. For each activity, determine

   - Calculate the Earliest Finish Time (EF) and Latest Finish Time (LF).

   - Calculate Slack time

   - Identify the critical path.

3. Discuss the impact of **Activity E: Application Development** is delayed by two days. Explain how this affects the total project duration and what corrective actions a project manager could take.