Schedule and Effort Practice Questions

Consider a project for a market-research system that enables users to simulate shopping and collects data about their preferences. The following lists the project milestones and the activities necessary to complete those milestones.

Milestone 1.   One person can do simulated shopping; dump to CSV
    Activity 1.1.   Set up web server (1.0)
    Activity 1.2.   Gather UI requirements for shopping web page (0.5)
    Activity 1.3.   Implement shopping web page (1.0)
    Activity 1.4.   Test/debug shopping web page (0.75)
Milestone 2.   One person can do questionnaire and simulated shopping; dump to CSV
    Activity 2.1.   Gather questions for questionnaire (0.25)
    Activity 2.2.   Implement questionnaire web page (0.5)
    Activity 2.3.   Test/debug questionnaire web page (0.5)
Milestone 3.   Users accounts working; store everything in MySQL database
    Activity 3.1.   Design and setup database (0.5)
    Activity 3.2.   Create account management and login web pages (1.0)
    Activity 3.3.   Modify existing code to use DB (0.75)
    Activity 3.4.   Test/debug all (0.5)
Milestone 4.   Questions and shopping site change between visits
    Activity 4.1.   Update DB to store visit info (0.25)
    Activity 4.2.   Implement logic for changing sites between visits (0.5)
    Activity 4.3.   Test/debug all (0.5)

Question 1. Draw (on the next page) an activity graph for the project. Use common sense to decide which activities can be parallelized and which cannot.

Question 2. Add the effort estimates to the graph and compute the critical path.

Question 3. How might you tighten the critical path for this project?

Question 4. Add the slack time estimates to the graph.

(Use for previous questions.)

Consider a project with

- 1 screen that involves 3 views and 8 database tables
- 2 screens that each involve 8 views and 4 database tables
- 2 3GL components

The team working on the project has 1.5 years of experience and is using CASE tools with very low maturity.

Question 5. Using COCOMO (and the tables on the next page), estimate the number of person-months to complete the project.

TABLE 3.10 Application Point Complexity Levels

	For Screens				For Reports		
	Number and source of data tables				Number and source of data tables		
Number of views contained	Total < 4 (<2 servers, <3 clients)	Total < 8 (2–3 servers, 3–5 clients)	Total 8+ (>3 servers, >5 clients)	*Number of sections contained*	Total < 4 (<2 servers, <3 clients)	Total < 8 (2–3 servers, 3–5 clients)	Total 8+ (>3 servers, >5 clients)
<3	Simple	Simple	Medium	0 or 1	Simple	Simple	Medium
3–7	Simple	Medium	Difficult	2 or 3	Simple	Medium	Difficult
8+	Medium	Difficult	Difficult	4+	Medium	Difficult	Difficult

TABLE 3.11 Complexity Weights for Application Points

Element Type	Simple	Medium	Difficult
Screen	1	2	3
Report	2	5	8
3GL component	—	—	10

TABLE 3.12 Productivity Estimate Calculation

Developers' experience and capability	Very low	Low	Nominal	High	Very high
CASE maturity and capability	Very low	Low	Nominal	High	Very high
Productivity factor	4	7	13	25	50

- *extra low* if it has fewer than 3 months of experience
- *very low* if it has at least 3 but fewer than 5 months of experience
- *low* if it has at least 5 but fewer than 9 months of experience
- *nominal* if it has at least 9 months but less than one year of experience
- *high* if it has at least 1 year but fewer than 2 years of experience
- *very high* if it has at least 2 years but fewer than 4 years of experience
- *extra high* if it has at least 4 years of experience

TABLE 3.13 Tool Use Categories

Category	*Meaning*
Very low	Edit, code, debug
Low	Simple front-end, back-end CASE, little integration
Nominal	Basic life-cycle tools, moderately integrated
High	Strong, mature life-cycle tools, moderately integrated
Very high	Strong, mature, proactive life-cycle tools, well-integrated with processes, methods, reuse