**Part 1:**

Cost management may be defined as a method that assists a business organization in planning or predicting if a project job can be completed within the projected budget by the team, and if not, gives estimated suggestions for completing the task inside the budget. Cost management may also refer to the process of calculating a project's overall cost and distributing it in a way that best meets the organization's needs in order to meet a deadline. Every organization's cost management department is critical to completing the plan within the allocated budget and time frame. Without a suitable cost management strategy in place, a firm risk losing money and, as a result, the project's cost will rise as previously predicted.

**Profits:**

Profit management lays a plan or analyzes a strategy that controls the cost and revenue. Its primary goal is to increase the profit margin. Profits are calculated by subtracting the whole expenses incurred by the company while completing the assignment from the total revenue earned.

**Life cycle costs:**

Life cycle costs may be defined as the process of factoring in all of the expenses that the business owner will incur throughout the business plan. such as investing in its assets, such as machinery, which may be used to achieve the company's goals on a long-term basis rather than only for one project.

**Tangible and intangible costs:**

Tangible and intangible costs are expenses that must be met by every company in order to meet its objectives or complete initiatives. Tangible costs are those incurred by the company, such as paying wages to employees, bonus schemes, providing proper infrastructure for staff, and computer systems, all of which contribute to the achievement of company goals. Intangible costs are those incurred by the company, such as the loss of an employee due to any reason or a reduction in goodwill or prestige, which are not measurable but play a significant role in the bottom line of every organization.

**Tangible and intangible benefits:**

Tangible and intangible benefits are difficult to quantify, for example, tangible benefits for any firm can be measured in monetary terms, such as the sale margin that they achieve throughout the business in which they deal. Intangible benefits, such as goodwill and prestige that the company earns in their business operation, cannot be measured in monetary terms. Both are extremely crucial when running a business.

**Direct and indirect costs:**

The cost incurred by the company in obtaining the product or service is known as direct cost. Direct costs are those incurred in the production of a specific product, whereas indirect costs are those incurred in the development of a better workplace and supplying fundamental requirements to the workforce.

**Part 2:**

**Exercise 1a. What is the cost variance, schedule variance, cost performance index (CPI), and schedule performance index (SPI) for the project?**

Cost Variance (CV) = EV - AC = 20,000 - 25,000 = -5000

Schedule Variance (SV) = EV - PV = 20,000 - 22,000 = -2000

CPI = EV/AC = 20,000/25,000 = 0.8

SPI = EV/PV = 20,000/22,000 = 0.909

**Exercise 1b. How is the project doing? Is it ahead of schedule or behind schedule? Is it under budget or over budget?**

Since SV is negative. the project is behind schedule.

Since CV is negative, the project is over budget.

**Exercise 1c. Use the CPI to calculate the estimate at completion (EAC) for this project. Is the project performing better or worse than planned?**

EAC = BAC/CPI = 120,000/0.8 = 150,000

The project is performing worse than planned because now it will need 150,000 to complete while it was planned to be completed at 120,000

**Exercise 1d. Use the SPI to estimate how long it will take to finish this project**

SPI = 12months/.909 = 13.2 months