CGGC 5005 Module 6 in-class exercises - Solutions

EVM in-class Exercises:

1. Jennifer has 6 unique Tasks in her project, with each task having a budget of $5,000. Each task is expected to take 1 month to complete. Each task is to be completed one after the other, hence 6 months total duration for the project.

Answer the questions below using this project status chart:

Task	**STATUS END OF 4th MONTH**
TASK A	COMPLETE; spent $3,500
TASK B	COMPLETE; spent $4,000
TASK C	COMPLETE; spent $3,000
TASK D	80% COMPLETE; spent $4,500
TASK E	NOT YET STARTED
TASK F	NOT YET STARTED

At the end of the 4th month:
What is the Cost Performance Index (CPI)?
What is the Schedule Performance Index (SPI)?
What is the Estimate at Completion (EAC)?
What is the Variance at Completion (VAC)?
(*Assume that your performance will remain the same after the 4th month)*

Answer:

Task	**STATUS END OF 4th MONTH**	**AC**	**PV**	**EV**
TASK A	COMPLETE; spent $3,500	$3500	$5000	100%x$5k =$5k
TASK B	COMPLETE; spent $4,000	$4000	$5000	$5k
TASK C	COMPLETE; spent $3,000	$3000	$5000	$5k
TASK D	80% COMPLETE; spent $4,500	$4500	$5000	0.8x$5k = $4k
TASK E	NOT YET STARTED			0X$5k =$0
TASK F	NOT YET STARTED			0X$5k =$0
TOTALS		$15,000	$20,000	$19,000

BAC= 6x$5k = $30k
EV = BAC X %complete = $30k x (1+1+1+0.8+0+0)/6 → $30k x (3.8/6) → $30k x 0.633 = $19k
At the end of the 4th month:

What is the Cost Performance Index (CPI)? =EV/AC = 19/15 = 1.27

What is the Schedule Performance Index (SPI)? = EV/PV = 19/20k = 0.95

What is the Estimate at Completion (EAC)? = BAC/CPI =$30,000 / 1.27 = $23,622

What is the Variance at Completion (VAC)? = BAC -EAC = $30 - $23,622 = $6,378

2. Nitesh Jaiswal is a project manager working on a building construction project. The project is expected to take 12 months and costs $ 720,000. At the end of the 6th month, Nitesh's clients wanted him to present them with the status of this project. His contractors have informed him that the project is 60% completed and they have spent $ 600,000.

(a) What is the Earned Value (EV) at the end of 6 months?

(b) What is the Actual Cost (AC) at the end of 6 months?

(c) What is the Cost Performance Index (CPI) at the end of the 6th month?

(d) What is the Cost Variance (CV) at the end of 6 months?

(e) What is the Variance at Completion (VAC)?

Assume that this project will continue with the same cost performance rate as identified at the end of the 6th month.

ANSWERS

(a) What is the Earned Value (EV) at the end of 6months?
EV = 720,000 x 60% = $ 432,000

(b) What is the Actual Cost (AV) at the end of 6 months?
AC = $ 600,000

(c) What is the Cost Performance Index (CPI) at the end of the 6th month?
CPI = EV / AC = 432,000 / 600,000 = 0.72

(d) What is the Cost Variance (CV) at the end of 6 months?
CV = EV – AC = $ 432,000 – 600,000 = ($ 168,000)

(e) What is the Variance at Completion (VAC)?
BAC = $ 720,000
EAC = BAC / CPI = 720,000 / 0.72 = 1,000,000
VAC = BAC – EAC = 720,000 – 1,000,000 = ($ 280,000)