# King Saud University

**Department of Information Systems**

# Project Management (IS-351)

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Use the following formulas if needed.

|  |  |
| --- | --- |
| Planned value = PV |  |
| Actual Cost = AC |  |
| Earned Value= EV | EV= PV up to date \* percent completed |
| Cost Variance= CV | CV = EV - AC |
| Schedule Variance= SV | SV = EV - PV |
| Cost Performance Index= CPI | CPI = EV/AC |
| Schedule Performance Index = SPI | SPI = EV/PV |

**Exercise 1:** Given for a certain project,

EV = $30,000.

AC = $33,000.

PV= $ 25,000.

What is CV? [a] $3,000.

[b] -$3,000.

[c] $5,000.

[d] -$5,000.

**ANSWER:** Using the formula CV = EV – AC

**We get CV** = 30,000 – 33,000 = -$3,000.

**Hence the correct choice is [b].**

**Exercise 2:** Given for a certain project,

EV = $30,000.

AC = $33,000.

PV= $ 25,000.

How is the project performing?

[a] The project is **over budgeted** and **ahead** of schedule.

[b] The project is **over budgeted** and **behind** schedule.

[c] The project is **under budgeted** and **ahead** of schedule.

[d] The project is **under budgeted** and **behind** schedule.

**ANSWER:** Using the formula CPI = EV/AC

**We get CPI = EV/AC = 30,000/33,000 = 10/11.**

**Since CPI = 10/11 i.e. is less than 1 ===🡺 over budgeted.**

Using the formula SPI = EV/PV

**We get SPI = EV/PV = 30,000/25,000 = 6/5.**

**Since SPI = 6/5 i.e. is greater than 1 ===🡺 ahead of schedule.**

**Hence the correct choice is [a].**

**Exercise 3:** Given for a 10 months project,

PV = $22,000.

EV = $20,000.

AC = $21,000.

BAC= $ 100,000.

1. Performing the work of this project

[a] costs more than planned because CV is a negative number.

[b] costs less than planned because CV is a positive number.

[c] costs exactly as planned because CV is equal to zero.

[d] None of the above.

**ANSWER:** Using the formula CV = EV – AC

**We get CV** = 20,000 – 21,000 = -$1,000.

**Hence the correct choice is [a].**

1. Performing the work of this project

[a] took less time than planned because SV is a positive number.

[b] took more time than planned because SV is a negative number.

[c] took exactly as planned because SV is equal to zero.

[d] None of the above.

**ANSWER:** Using the formula SV = EV – PV

**We get SV** = 20,000 – 22,000 = -$2,000.

**Hence the correct choice is [b].**

1. How is this project performing?

[a] The project is **over budgeted** and **ahead** of schedule.

[b] The project is **under budgeted** and **ahead** of schedule.

[c] The project is **over budgeted** and **behind** schedule.

[d] The project is **under budgeted** and **behind** schedule.

**ANSWER:** Using the formula CPI = EV/AC

**We get CPI = EV/AC = 20,000/21,000 = 20/21.**

**Since CPI = 10/11 i.e. is less than 1 ===🡺 over budgeted.**

Using the formula SPI = EV/PV

**We get SPI = EV/PV = 20,000/22,000 = 10/11.**

**Since SPI = 6/5 i.e. is less than 1 ===🡺 behind schedule.**

**Hence the correct choice is [c].**

1. The estimated budget to complete the project is:

[a] $101,000.

[b] $103,000.

[c] $105,000.

[d] None of the above.

**ANSWER:** Using the formula EAC = BAC/CPI

**We get EAC = BAC/CPI = 100,000/(20/21) =**

**= 100,000 \* (21/20)**

**= $105,000.**

**Hence the correct choice is [c].**

1. The estimated time to complete the project is:

[a] A Quarter of a month more than what was planned..

[b] Half a month more than what was planned.

[c] Three Quarters of a month more than what was planned.

[d] None of the above.

**ANSWER:** The estimated time can be calculated using the planned duration of the

project (10 months) and the SPI previously calculated as follows:

Estimated Time = 10 months / (SPI)

**We get Estimated Time = 10 months / (SPI ) =**

**10 months/ (10/11) =**

**= 10 \* (11/10)**

**= 11 months.**

**Hence the correct choice is [d].**