

Q1.

Explain what the following terms mean in a construction project cost management context with one example each:

- Direct costs**
Are costs that can be directly related to producing the deliverable of the project. Example; cost of materials to be used in a construction project. Any valid example accepted. (1+1)
- Indirect costs**
Are costs that are not directly related to producing the deliverable of the project. Example; Electricity costs of the office. Any valid example accepted. (1+1)
- Variable costs**
Are costs that change with the work completed. Example; costs of materials. Any valid example accepted. (1+1)
- Fixed costs**
Are costs that are fixed and do not change with the work completed. Example; planning application fee. Any valid example accepted. (1+1)

(2) x 4 = (8)

(8)

Current cash flow status of a construction project, after **three months** into the project, is summarised in the following table. The construction was initially planned to be completed in **5 months**. The plan was to complete each work package within a month.

Work Package	Planned Value £ (PV)	Actual Cost £ (AC)	% of work completed (WP)	Earned Value £ (EV)
1	75,000	80,000	100%	100% completed. So, EV = PV 75,000 (2)
2	60,000	55,000	80%	EV = PV x WP% = $\frac{60000 \times 80}{100}$ = 48,000 (2)
3	100,000	70,000	60%	EV = PV x WP% = $\frac{100000 \times 60}{100}$ = 60,000 (2)
4	50,000	Not done	0%	No work done = 0 (2)
5	50,000	Not done	0%	No work done = 0 (2)

- Complete the table by calculating the Earned Value (EV) for each of the work packages.
See above. All valid answers get (2) x 5 = (10)

(10)

b. Calculate the following indices to-date:

i. Cost Variance (CV)

Total EV to-date = £75,000 + £48,000 + £60,000 = £183,000

Total AC to-date = £80,000 + £55,000 + £70,000 = £205,000

CV = EV – AC = £183,000 - £205,000 = -£22,000 (over spend)

(2)

ii. Schedule Variance (SV)

Total EV to-date = £75,000 + £48,000 + £60,000 = £183,000

Total PV to-date = £75,000 + £60,000 + £100,000 = £235,000

SV = EV – PV = £183,000 - £235,000 = -£52,000 (over spend)

(2)

iii. Cost Performance Index (CPI)

Total EV to-date = £75,000 + £48,000 + £60,000 = £183,000

Total AC to-date = £80,000 + £55,000 + £70,000 = £205,000

CPI = EV / AC = £183,000 / £205,000 = 0.893

(2)

iv. Schedule Performance Index (SPI)

Total EV to-date = £75,000 + £48,000 + £60,000 = £183,000

Total PV to-date = £75,000 + £60,000 + £100,000 = £235,000

SPI = EV / PV = £183,000 / £235,000 = 0.779

(2)

(2+2+2+2=8)

(8)

c. Based on the indices calculated under b. above, comment on the budget and schedule performance of the project.

CPI is below 1, means that the project has cost over-run. So, the budget performance is poor.

(2)

SPI is below 1, means that the project has time over-run. So, the schedule performance is poor.

(2)

(2+2=4)

(4)

(8+10+8+4 = 30)