Solutions

Marking: **K** knowledge, **App** use of the case or data, **An** analysis (a chain of reasons: cause, then effect), **Ev** evaluation (a judgement with a reason). In calculations, **M1** is for the method and **A1** for the answer; **B1** is an independent mark.

Each answer shows the steps, then the **result**.

2.1

A–B–D–F

$3 + 4 + 5 + 2 = \mathbf{14}$ days

2.2

path A–C–E–F is 10 days

float $14 - 10 = \mathbf{4}$ days on C and on E

C can start up to 4 days late without delaying the project, if E is not also late

2.3

$CPI = \dfrac{20}{25} = \mathbf{0.8}$

$SPI = \dfrac{20}{22} = \mathbf{0.909}$

2.4

$EAC = \dfrac{50{,}000}{0.8} = £\mathbf{62{,}500}$

overrun £**12**,**500**

3.1

(a) C is not on the critical path, so the project end does not move

(b) 2 days at £300: **12** days for £**600**

(c) no: a day of D costs £500, more than the £450 it is worth

(d) **12** days; gain $2 \times 450 - 600 = £\mathbf{300}$

3.2

(a) $CPI = \dfrac{16}{24} = \mathbf{0.667}$; $SPI = \dfrac{16}{20} = \mathbf{0.8}$

(b) $\dfrac{40{,}000}{0.667} = £\mathbf{60{,}000}$

(c) spending is not progress: only £16,000 of work, 40% of the scope, is done; at this rate the refit costs 50% more than budget

3.3

7–8: today, a 4-day late start on E does not move the end date (App); but it uses all the float, so A–C–E–F becomes critical too (An); with two critical paths, any delay on either one now moves the end (An); the ventilation unit's supplier is often late: with no float left, a late unit moves the end date directly (App); float belongs to the project, as a shock absorber for all trades (K); refusing may cost goodwill with a contractor Nimbus needs (Ev); recommendation with a condition, e.g. allow a 2-day delay in writing, keep 2 days of float, and recheck the end date each week (Ev). **4–6**: sound analysis with limited use of the network or a weak judgement. **1–3**: relevant points, mostly descriptive.

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