FINAL TEST – July 6st, 2017

## name:

# Monitoring (6 points)

Based on following project data obtained at the end of the fifth month into the project execution, you are requested to compute suitable project cost and duration estimates at completion.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Task name | Predecessor | Duration [months] | BAC [k€] | ACWP [k€] | WP% |
| a |  | 2 | 100 | 80 | 100% |
| b | a | 3 | 200 | 180 | 70% |
| c | b | 3 | 200 | 0 | 0% |
| d | a | 9 | 600 | 350 | 50% |

# Scheduling (6 points)

The following project tasks with associated cost are given (T in weeks, C in k€). If overhead cost is 2,500€/week, what is the optimal project duration?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Activity | predecessor | T normal | T crashed | C normal | C crashed |
| A |  | 6 | 3 | 6 | 9 |
| B | A | 9 | 6 | 9 | 12 |
| C | A | 3 | 2 | 4 | 6 |
| D | C | 5 | 2 | 6 | 12 |
| E | D | 2 | 1 | 2 | 3 |
| F | B | 4 | 1 | 6 | 9 |
| G | F | 8 | 5 | 8 | 17 |

# Small Project (6 points)

Pretend to be the SPV’s project manager of the BOT Oil Pipeline project to bring extracted oil from Chad to Cameroon’s marine terminal on the Pacific Ocean. The owners of the project are the Chad and Cameroon’s governments. Chad is an African country that has been plagued by political violence, various states of civil war and recurrent attempted coups d'état since its gaining of independence in 1960. The country is one of the poorest and most corrupt countries in the world; most Chadians live in poverty as subsistence herders and farmers. Since 2003 crude oil has become the country's primary source of export earnings, superseding the traditional cotton industry. On the contrary, Cameroon enjoys relatively high political and social stability.

The Chad-Cameroon Oil Pipeline project is depicted in the charts below.

|  |  |  |
| --- | --- | --- |
|  | DISTANCES  Oil fields – Pumping station 1 (PS1)  PS 1 – PS 2  PS 2 – PS 3  PS 3 – Yaounde city station  Yaounde – Marine terminal at Kribi | km  20  180  200  600  300 |

You are asked to schedule the project with the line-of-balance method, determine the expected total duration, plot the resource usage diagram, and develop a complete risk plan with three sample major risks.

Below are the durations of each individual task, when performed by one construction contractor. Four is the maximum number of available construction contracting companies. All tasks can be performed by 1 or more construction contractors without loss of productivity (i.e.: 1 contractor takes 2 months = 2 contractors take 1 month).

|  |  |
| --- | --- |
| **Task** | **Duration** |
| Oil wells perforations | 12 months |
| Pipeline Section from oil wells to PS1 | 10 km/month |
| Pipeline section PS1 – PS2 | 20 km/month |
| Pipeline section PS2 – PS3 | 25km/month |
| Pipeline section PS3 – Yaounde | 30 km/month |
| Pipeline section Yaounde – Marine terminal | 20 km/month |
| PS1 construction | 4 months |
| PS2 construction | 3 months |
| PS3 construction | 4 months |
| Marine terminal at Kribi | 8 months |