|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Information Domain Value** | **Optimistic** | **Most Likely** | **Pessimistic** | **Weight** |
| Number of Inputs | 15 | 20 | 25 | 3 |
| Number of outputs | 10 | 14 | 20 | 4 |
| Number of files | 5 | 6 | 7 | 7 |
| Number of external interfaces | 3 | 4 | 6 | 5 |
| Number of inquiries | 14 | 18 | 22 | 5 |

**1) Calculate FP from above data, where ∑ (Fi) = 42**

**2) If Organizational average productivity is 3.3 FP/PM and organizational labor rate**

**is Rs. 5945 per month. Calculate total project cost and estimated effort on the basis of function point calculated.**

**Q2.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Information Domain Value** | **Optimistic** | **Most Likely** | **Pessimistic** | **Weight** |
| Number of Inputs | 25 | 33 | 40 | 3 |
| Number of outputs | 30 | 34 | 44 | 4 |
| Number of files | 5 | 6 | 10 | 7 |
| Number of external interfaces | 3 | 4 | 8 | 5 |
| Number of inquiries | 15 | 18 | 22 | 5 |

**1) Calculate FP from above data, where ∑ (Fi) = 35**

|  |  |  |
| --- | --- | --- |
| Activity | Predecessor | Duration (days) |
| A | ---- | 3 |
| B | ---- | 3 |
| C | B | 3 |
| D | A,B,C | 2 |
| E | C,D | 1 |
| F | D,E | 3 |
| G | F | 2 |
| H | G | 2 |
| I | E,H | 2 |

**2) If Organizational average productivity is 4.3 FP/PM and organizational labor rate is Rs. 3987 per month. Calculate total project cost and estimated effort on the basis of function point calculated.**

1. Draw network diagram using AON technique.
2. Calculate the early start, early finish, late start, and the late finish of each activity.
3. Also compute the total slacks and free slacks, and summarize the critical path calculations in a tabular form to derive the critical path.

A. Calculate the following when Average productivity =700 LOC\pm, Labor rate = $1000 per month:

1. Total LOC
2. Estimated Effort
3. Cost per LOC
4. Total Cost

|  |  |  |  |
| --- | --- | --- | --- |
| **Function** | **Optimistic** | **Most Likely** | **Pessimistic** |
| User interface and control | 1000 | 2200 | 3000 |
| 2-D geometric analysis | 1500 | 1800 | 2100 |
| 3-D geometric analysis | 4000 | 4500 | 4700 |
| Data base management | 3000 | 3200 | 3700 |
| Graphics displays | 500 | 700 | 800 |
| Peripheral control | 990 | 1500 | 2000 |
| Design analysis | 140 | 180 | 220 |

B. Calculate the following when Average productivity =70 FP\pm, Labor rate = Rs.1000 per month, complexity multiplier = 48, weighting factor is of simple nature:

1. Total FP
2. Estimated Effort
3. Cost per FP
4. Total Cost

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Information domain value** | **Optimistic** | **Most Likely** | **Pessimistic** | **Weighting factor** |
| Number of inputs | 22 | 28 | 30 | 3 |
| Number of outputs | 10 | 15 | 25 | 4 |
| Number of inquiries | 14 | 20 | 40 | 3 |
| Number of files | 5 | 6 | 8 | 7 |
| Number of external interfaces | 2 | 2 | 4 | 5 |

**Factor**

**Value**

Backup and recovery

4

Data communication

3

Distributed processing

0

Performance critical

5

Existing operating environment

2

On-line data entry

5

Input transaction over multiple screens

4

Master files updated on-line

2

Information domain values complex

1

Internal processing complex

5

Code designed for reuse

3

Conversion/installation in design

3

Multiple installations

5

Application designed for change

4

**Q2.**

Suppose a library automation system must be designed and implemented. From the requirements it was clear that there will be four major modules in the system. The project type fall in an organic category, for which the values of a and b for the formula “a\*KDLOC^b” are “3.2 and 1.05” respectively. The modules with estimated KDLOC were estimated as follows:

DATA ENTRY: 0.8 KDLOC

DATA UPDATE: 0.6 KDLOC

QUERY 0.9KDLOC

REPORT GENERATOR: 2.0KDLOC

From the requirements the ratings of the different cost driver attributes was assessed. These ratings, along with their multiplying factors are:

Reliability high 1.15

Storage high 1.06

Experience low 1.13

Programmer capability low 1.17

All other factors had NOMINAL rating.

**a) Find the effort for the above given data using COCOMO II model**

**b) Also calculate the cost.**