ESTMATION BASED NUMERICALS / COCOMO BASED NUMERICALS-

Using COCOMO, estimate time required for the following : (estimate effort, development time and person required.)

1) A semi-detached model of software project of 2000 lines.
2) An embedded model of software of 30,000 lines.

Solution : To estimate time using basic model of COCOMO following formula can be used.

$$E = a_b(KLOC)^{bb}$$

where E is the effort in person-month.

$$D = c_b(E)^{db}$$

where D is development time in chronological months.

$$P = E/D$$

where P is total number of persons involved in the project. The constants are -

System	a_b	b_b	c_b	d_b
Organic system	2.4	1.05	2.5	0.38
Semidetached system	3.0	1.12	2.5	0.35
Embedded system	3.6	1.20	2.5	0.32

1) Given that, System = Semidetached

Lines of code = 2000 lines = 2 KLOC

$E = a_b(KLOC)^{bb}$

$E = 3.0(2)^{1.12}$

E = 6.58 person-month

$D = c_b(E)^{db}$

D= 4.8 months

P = E/D
P = 1.3 = 1person

Thus 1 person can handle this project within approximately 5 months.

2) Given that, System = Embedded

Lines of code = 30,000 lines = 30 KLOC

$E = a_b(KLOC)^{b_b}$

$E = 3.6(30)^{1.20}$

E = 213 person - month

$D = c_b(E)^{d_b}$

$D = 2.5(213)^{0.32}$

D = 14months

P = E/D
P = 213/14
P = 15 persons.

That means 15 persons can complete this project within approximately 14 months.

Practice this -

Using COCOMO, estimate time required for the following :

1) An organic model of software of one lakh lines.
2) An organic model of software of 10 lakh lines.