Software Project Management
BS-SE

Name: **Babar Kamal**
ID: **5507**
Module: **14**

Question 1:
Answer: Cost benefit analysis is a simple mathematical technique for comparing the business value of two or more projects. Project managers use cost benefit analysis in the project initiation phase to show the value of a product. In the product initiation the project manager must justify the project to get the organization approval to spend money.

Cost benefit analysis serves two purposes:
 I.   To verify that an investment's benefits are more than its cost.
 II.   To select an investment by comparing their benefits over cost ratios.

Example: Let determined that the cost benefit produced by the two projects where 1st project is experiencing a total cost of 150,000 and benefits of 200,000 where as the 2nd project is experiencing cost of 20,000 and benefits of 50,000, so apply cost benefit ratio on the 1st project is 15,000/20,000 = 1.3 and the ration of 2nd project is 200,000/300,000 = 1.5, so which means 2nd project is more feasible having high cost benefit ratio.

Question 2:
Answer:
Function point analysis is to measure the developing cost of new or existing software.It is also useful in comparing and highlighting opportunities for productivity improvements. The larger the number of FP the more functionality, FP allows for scaling and measuring the size of requirements.

   Few factors of FPA:
 ➔ What are the goals of the project?
 ➔ Any alternatives?
 ➔ Is high performance critical?
 ➔ Is the internal processing complex?
 ➔ Is the code designed to be reusable?
 ➔ Is the process to be distributed?
 ➔ Who will be interested parties?

OPA is a function related metric for 4th Generation Languages, Object point analysis is an approach used in some models such as COCOMO II. OPA is a way of estimating effort size

- OPA is similar to Functional analysis.
- Computing the number of screens, report and 3GL
- Assign the weight accor
- A formula translates OPs into productivity measures

Calculate the total OP= sum of OP*weighting
Formula: Effort = NOP/PROD

Example:

A simple example:

Inputs	
Outputs	10
files	4
inquiries	5
interfaces	4

Function Type	Low	Avg	High
EI	24	4	96
EQ	16	5	80
EQ	22	4	88
ILF	4	10	40
ELF	2	7	14

UPA=**318**

And **1.17** is comes from General systme characteristic

Calculating: FP estimated = **318 x 1.17 = 372**

Question 3:

Answer:

COCOMO II model example:

Use the COCOMO II model to estimate the effort required to build software for a simple automation system that produces 15 screens 13 reports and will require approximately 89% as new software components. Assume average complexity and average developer/environment maturity. Use the application composition model with object points

Given:

Object	Count	Complexity	Weight Factor	Total Objects
Screens	15	Simple	1	15
Report	13	Simple	2	26
3GL Components	0	NA	NA	0
Total Objects Points:	41			

We already know that 89% of components to be developed so the remaining 11% will be again use in next one….

Now we compute NOP as:

NOP = (OP)*[(100 - % reuse)/100]

NOP = 41*[(100-11)/100]

NOP = 41*89/100=36.49 OP

Since productivity is above given avg. let assume the Productivity is =12
Hence,effort =NOP/PROD in person months
Effort = 36.49/12
Effort = 3.04 person-months