Ans 1: for, UFP

$UFP = (20 \times 6) + (30 \times 4) + (10 \times 10) + (11 \times 10) + (5 \times 9)$

$= 120 + 120 + 100 + 110 + 20$

$= 470$

Additional system requirements

$\sum_{i=1}^{14} f_i = 3+3+3+5+3+3+3+3+3+3+2+3+3+3$

$\sum_{i=1}^{14} f_i = 40$

Complexity adjustment factor

$CAf = (0.65 + 0.01 \times \Sigma f_i)$

$= (0.65 + 0.01 \times 40)$

$= 1.05$

function point

$FP = UFP \times CAf$

$= 470 \times 1.05$

$= 493.5$

Hence, $FP = 494$

Ans:- Size of project = 400 KLoC
Project Schedule its very tight and complex hardware interface is required

So, it is clear that the mode used is embedded mode.

for effort,

$$E = a_b (KLOC)^{b_b}$$
$$E = 3.6 (400)^{1.20}$$
$$E = 4772.81 \text{ PM (Person Months)}$$

for development time

$$D = C_b (E)^{d_b}$$
$$= 2.5 (4772.81)^{0.32}$$
$$D = 38 \text{ months}$$

Average staff size $(S_s) = \frac{E}{D}$ persons

$$= \frac{4772.81}{38}$$
$$= 125.60 \text{ persons}$$

Productivity of the project $= \frac{LOC}{E}$

$$= \frac{400 \times 1000}{4772.81}$$
$$= 83.8 \text{ Loc/PM}$$

Ans3- The semi-detached mode is the most appropriate mode, keeping in size limit, execution time and lines of code.

Database size is low - 0.94
Execution time constraints is nominal - 1.00

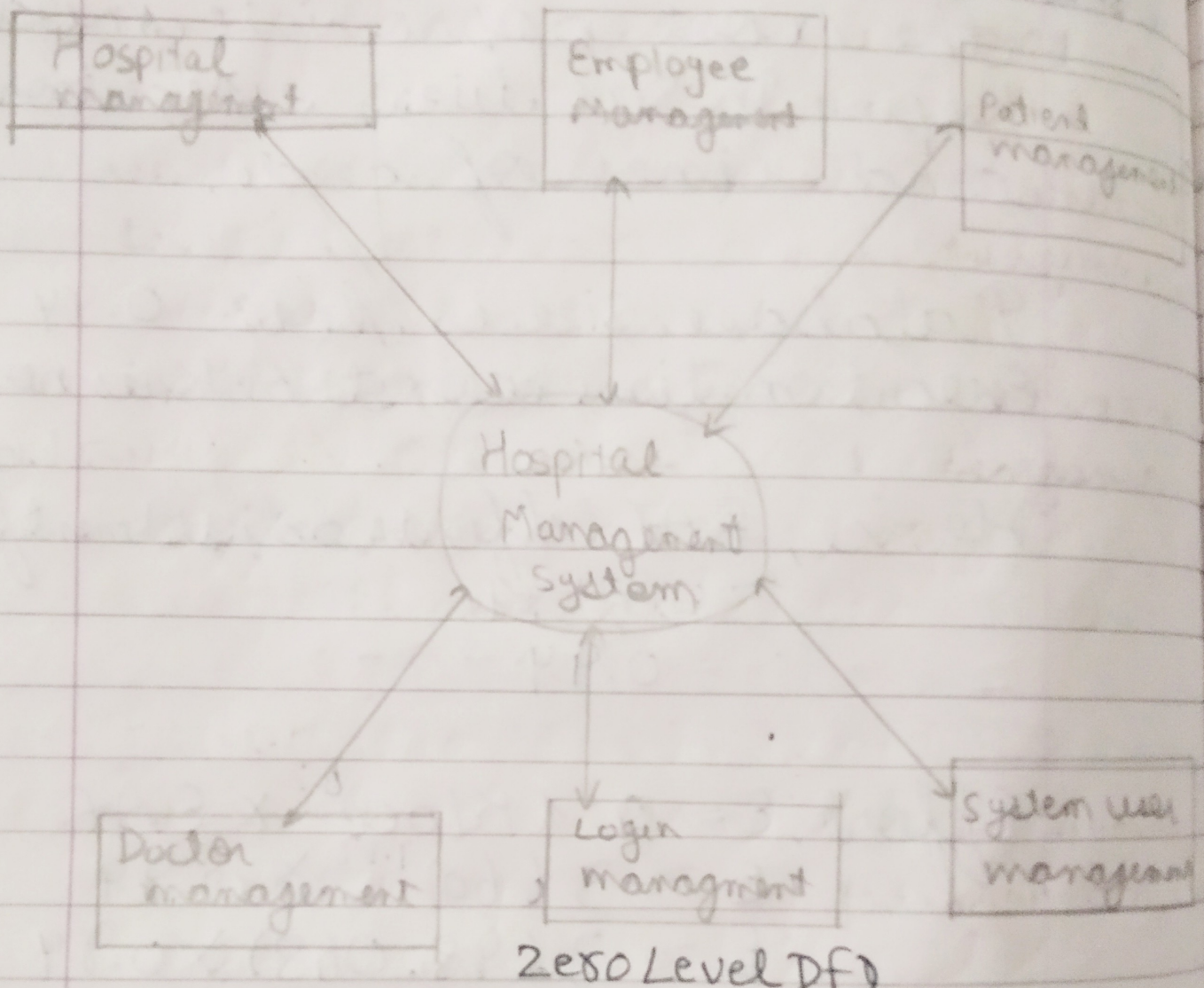
Hence, EAf (effort adjustment factor)
$= 0.94 \times 1$
$= 0.94$

Effort, $E = a_i (KLoC)^{b_i} \times EAf$
$E = 3 (60)^{1.12} \times 0.94$
$E = 3 (98.068) \times 0.94$
$E = 294.205 \times 0.94$
$E = 276.55176$ PM (person month)

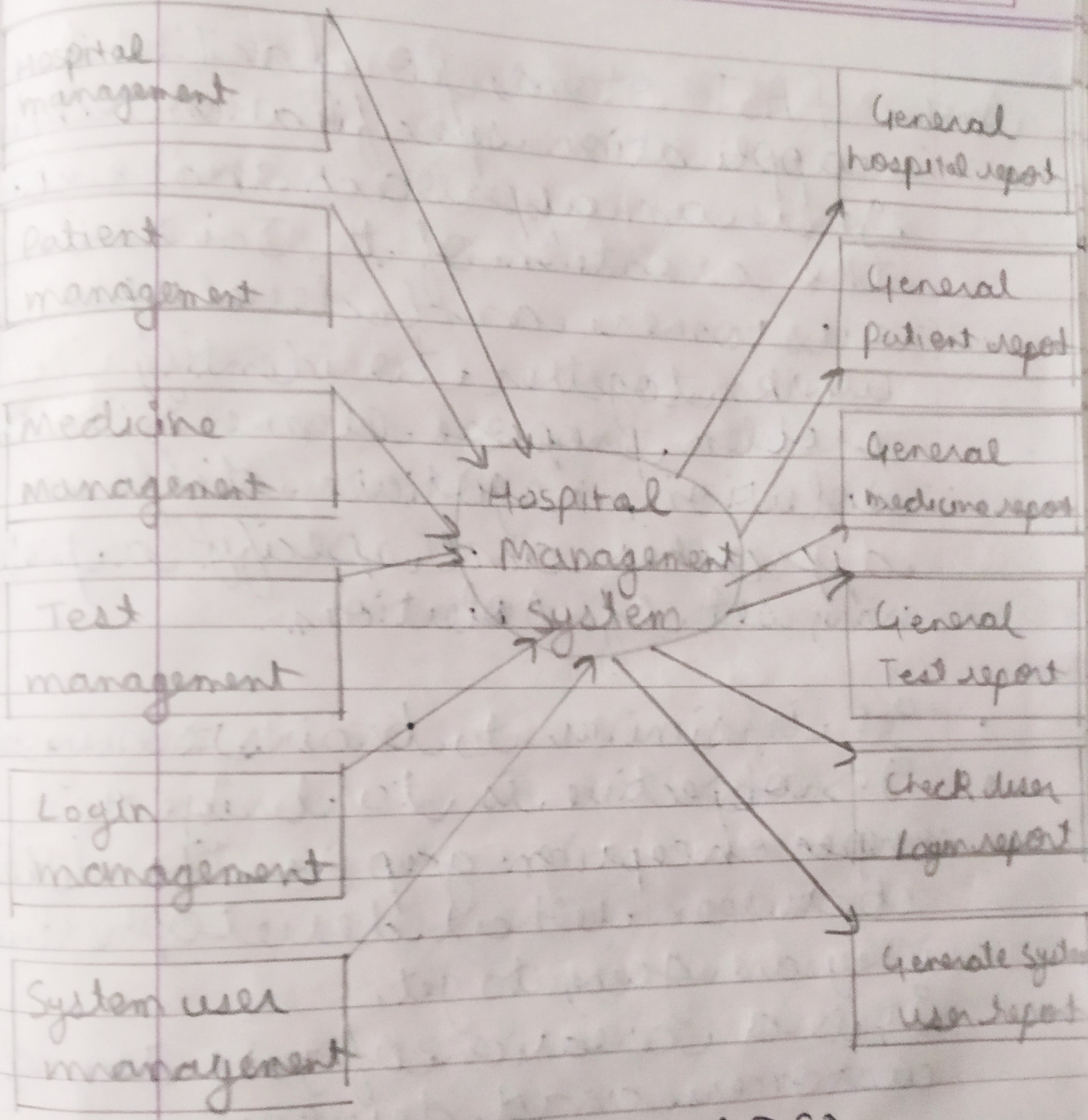
Now development time
$D = C_i (E)^{di}$
$= 2.5 (276.55176)^{0.35}$
$= 2.5 \times 7.155$
$= 17.8875$ m (months)

Hence, the effort is 276.55176 PM and development time is 17.8875 PM

Ans5-



Zero Level Df)



first level DFD

Ans6- FAST stands for facilitated application specification technique.
- It is an approach that encourages the creation of the joint team of customers and developers who works together to identify the problem propose elements to the solution, negotiate different approches and specify a preliminary set of solutions.

- It is similar to brainstorming session.
- Its objective is to bridge the ~~error~~ conception gap i.e the difference between what developers think they are going to get.
- It is a creation of joint team of customers and developers.

There are some guidelines:
1- Arrange a meeting at a neutral site
2- Establish rules for participation
3- Informal agenda to encourage free flow of ideas.
4- Appoint a facilitator
5- Participants should not criticize.

Activities Of fast session:

1. Every participants present his/her list.
2. Combine list for each topic are prepared.
3. Disussion of combine list.
4. Sub teams to develop mini specification is made.
5. Presentation of mini-specifications is made

QFD:-

Stands for quality function deployment. It is a process and set of tools used to effectively define customer requirements and convert them into detailed engineering specifications & plans to produce the products that fulfill those requirement.

There are three tepes of requirements. They are identified as follows:

1. Normal requirement:- These requirement if present, the customer is then satisfied.

- Expected requirement:- These are implict to the software product and may be so obvious that customer does not explicitly state them.
- Exciting requirements:- Software go beyond the customer's expectation and prove to be easy very satisfying when present.

Steps of QFD

1. Identify, all the stakeholders
2. List out requirements from customers
3. Degree of importance is assigned to each requirement

Thus the customers determine the importance of each requirement on scale of 1 to 5

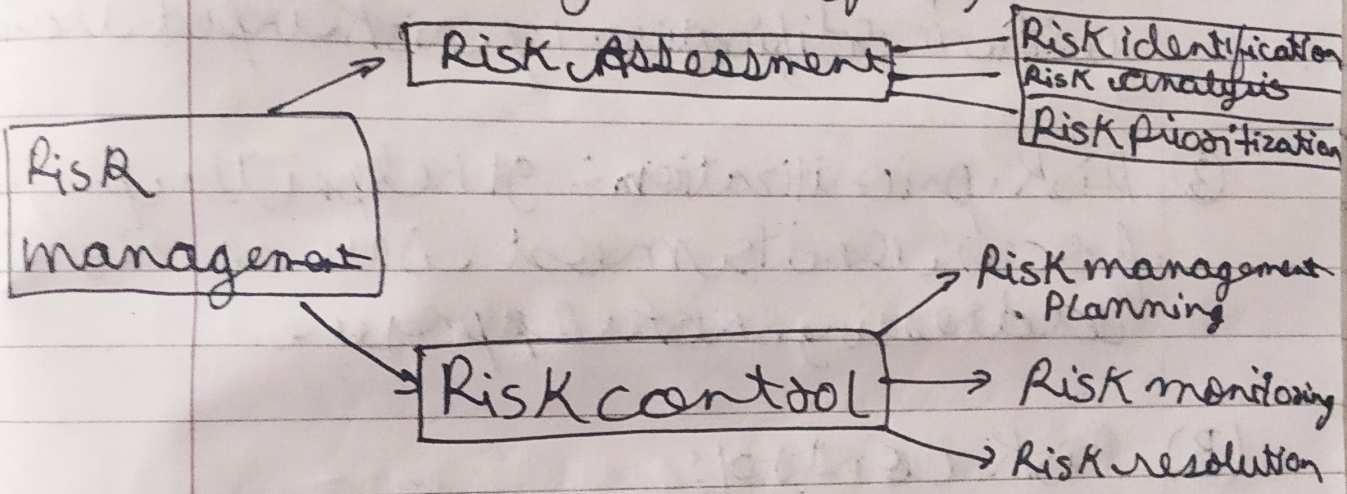
5 point : Very important
4 point : Important
3 point : Not important but nice to have
2 point : Not important
1 point : Unrealistic

Requirement Engineer may categorize

1. It is possible to achieve
2. It should be deferred and why
3. It is impossible and should be dropped from consideration.

Date

Ans:- Software Risk Management:
Risk is a problem that may cause some loss or threaten the success of the project, but which is not happened. It is the process of identifying, addressing and eliminating these problems, before they can damage the project.



(A) Risk management:- The objective of risk assessment is to division the risk in the condition of their loss, causing potential. for risk assessment the first thing is that every risk should be rated in two methods.

- The possibility of a risk coming to us.
- The consequence of the issues related to that risk based on these two methods, the priority of each risk can

be estimated.

$$P = \delta \times S$$

① Risk Identification: It is the process of examining a project and identifying areas of potential risk.

② Risk analysis: It involves examining how project outcomes might change with modification of risk input variables.

③ Risk prioritization: It helps the project focus on its most severe risk by addressing risk exposure.

(B) Risk control:
It is the process of managing risks to achieve the desired outcomes.

(1) Risk management: Planning produces a plan for dealing with each significant risks.

(2) Risk monitoring: Monitoring the project as the development progresses, periodically re-evaluating the risk

(3) Risk resolution: It is the execution of the plans of dealing with each risk

Ans 4- KLOC = 20 EAf = 2

The initial effort estimate for the project is obtained from following equation,

$$E = a_i (KLOC)^{b_i} \times EAf$$

Acc to KLOC, best model will be organic here, $a_i = 3.2$ and $b_i = 1.05$

$$E = 3.2 (20)^{1.05} \times 2$$
$$E = 148.6830 PM$$

$$D = C_i (E)^{d_i}$$
$$D = 2.5 (148.6830)^{0.38}$$
$$D = 16.7262 \text{ months}$$

Using the following equation phase wise cost and schedules can be estimated

$$EP = \mu P E$$
$$DP = TPD$$

Since size is only 20 KLOC, it is an organic model

→ Phase wise distributed

- Plan and requirement = 0.06 × 148.68
  = 8.9208 PM
- System design = 0.16 × 148.68
  = 23.7888 PM
- Detailed design = 0.26 × 148.68
  = 38.6568 PM
- Module code and Test = 0.42 × 148.68
  = 62.4456 PM
- Integration and Test = 0.16 × 148.68
  = 23.7888 PM

→ Phase wise development time duration

- Plan and requirement = 0.10 × 16.72
  = 1.672 M
- System design = 0.19 × 16.72
  = 3.1768 M
- Detailed design = 0.24 × 16.72
  = 4.0128 M
- Module code and Test = 0.39 × 16.72
  = 6.5208 M
- Integrated and Test = 0.18 × 16.72
  = 3.0096 M