Que 1:→

Ans→. Possible symptoms of software crisis in a software projects are:-

- fail to meet user requirements.
- frequently crash.
- expensive (over budget)
- use resources very poorly.
- late delivery of software products happens.
- difficult to debug & modify.

these are some of the basic symptoms it also include poor feasibility study & poor requirement analysis. Also related with coding, design. Testing & Maintanence. these components are may not compiled as we want & poor gathering of information. These are some of the possible symptoms, which may lead to the failure of software product. This leads the product to be

- over budget
- over schedules.
- large number of cancellation
- Uncontrolled & poorly managed.

Phase containment of error in software project:

→ The principle of detecting errors as close to the point of introduction is known as Phase containment of errors.

Let us suppose that an error can be noticed in Testing phase then in-order to remove that error first we have to find out from which phase the error got introduced let us suppose the error is generated in design phase so we can to correct that error in design phase then all the subsequent phases means, coding phase too. In case if the difference between phases is large we have to change all the subsequent phase & to solve the error it will take the cost of repairing or modifying in all the subsequent phases, same matter in time a lot of time will lost in order to detect the defect & repair that errors.

Ans 2 ⇒.

Implementation of W5HH principle. for development of an ERP system for an educational institute.

In W5HH. it is basically
WWWWWHH.
6
full form for-that is or each setter stands for

→ Why → What → When → Who → Where
→ How → How much.

for generating ERP system. for an educational institute we will have to search for.

1). Why is the system being developed.

→ means. we have to try to know the reason for this system. what functionalities it have to included. for what work it is going to do?

→ Here we have enable. the access of the validity of the erp system. who have to do what functionalities.

2). What. have to be done?

→ Here we gather the information about what task should our system is capable of to be done?

3). When the project will be completed?

→ Here scheduling of the project will be done. means here we fix upto what time.

project will be ready to serve. Here we define each schedule like coding schedule, Testing schedule and all.

4). Who is responsible for what functionality?
Here we gather the information about the access rights of the member. As we have to give some rights to professors, some to students and some to someone, like Academics control, sports control and all?

5). Where they are located?
Here we have to find the location of organisation & all the members who are going to take the use of the project or ERP.

6) How will we have to do this job technically & magerially?
→ Here we made our all teams like, testing staff, coding staff manager & all & here, we assign them their work to do this task of doing or making ERP system.

7) How much of each resource is needed?
→ Here we decide which resources we are going to use for which part & here we make all the resources list & their usage for making this work done?

Que 3.

(a). Abstraction vs decomposition

Abstraction.	decomposition.
→ It is one of the principle of OOPS. It allows us to name consciously, ignoring some aspects of a subject. to do, better understand other aspects.	→ Its like "divide & conquer" It is a way to breakdown your systems into modules. in such a way that each module provide different functionality, but may affect other modules also.
→ Here it is not possible as making of some part of system leads to error in other phase.	→ Here different people can work on different problems. means parallelism may be possible
→ Here if we go smoothly without errors then chances are very less.	→ Here the case may occur in which combining the modules may lead to failure or crash of system even though each module is written correct.

(b) Simple program vs Software program (Product)

Simple Program	Software ~~Program~~ Product
→ They are usually small in size. They are, lines of code or maybe 100 to 2000 lines codes or little more.	→ very big. This line of codes are in thousands & lakhs. sometime many more than this depend upon software Product.
→ There is no documentation or lack in documentation. As developer is himself is sole user.	→ Proper documentation & well documented and user manuals prepared because of large or vast number of users.
→ single developer or maybe 2-3 developer make a program.	→ A proper & well trained team of developer makes the product.
→ It provides limited functionality & less features	→ It provides more functionality as they are big in size (lines of codes more options and features are provided.

(c). Waterfall Model Vs. Spiral Model

Waterfall Model	Spiral Model
→ Waterfall Model works in sequential Method.	→ Spiral Model works in evolutionary Method.
→ In waterfall Model errors or risks are identified and rectified after the completion of stages.	→ In spiral model errors or risks are identified and rectified earlier.
→ Waterfall Model is adopted by customers.	→ While spiral model is adopted by developers.
→ waterfall model is applicable for small project.	→ While spiral model is used for large projects.
→ In waterfall model requirements and early stages planning is necessary.	→ While here requirements and early stage planning is necessary if required via next version more functionalities being added.

Ans 4⇒.

(a).

Library management system.

DFD. (Data flow diagram) shows the flow of information & changes applied.

Here for this system inputs can be:.

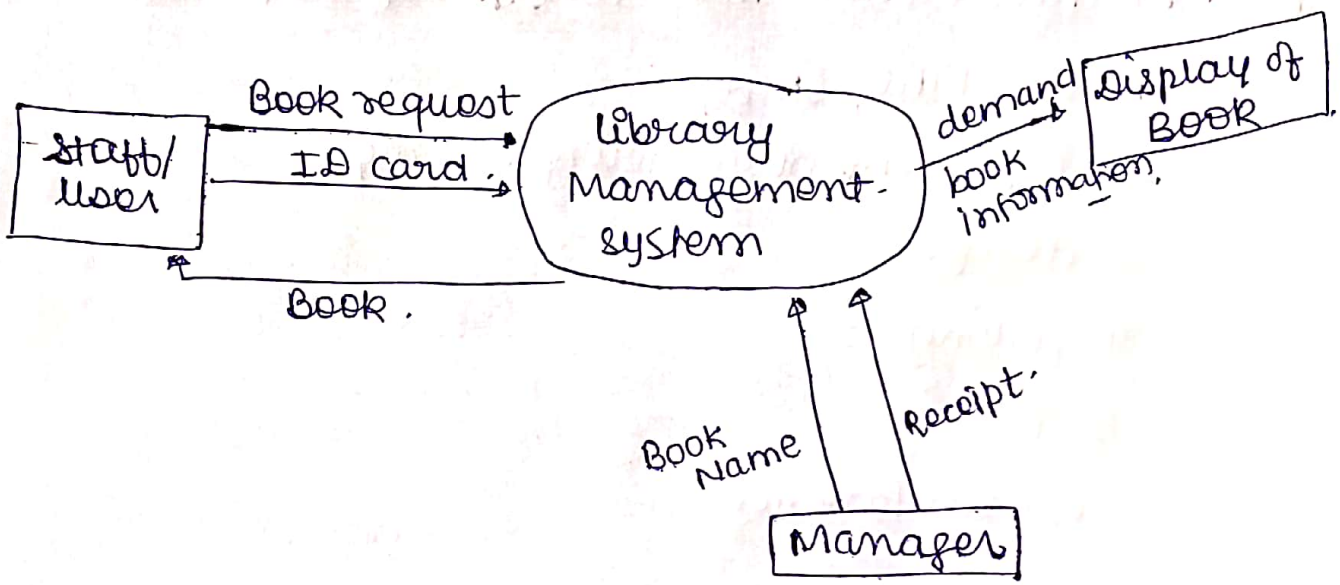
- Book request
  - → Here the library staff request for the Book issuing.
- Library card
  - → Here students have to show or submit his or her Id proof that he is regular staff & all the facilites of library is valid for him/her.

The overall processing unit will contain following output that a system will produce, or generate.

- Book will be output as the book demanded by the user or staff & will be given to them.
- Information of given book will be updated on the system.
- Displayed the Book.
- Manager give Book Issue Receipt & Book Name.

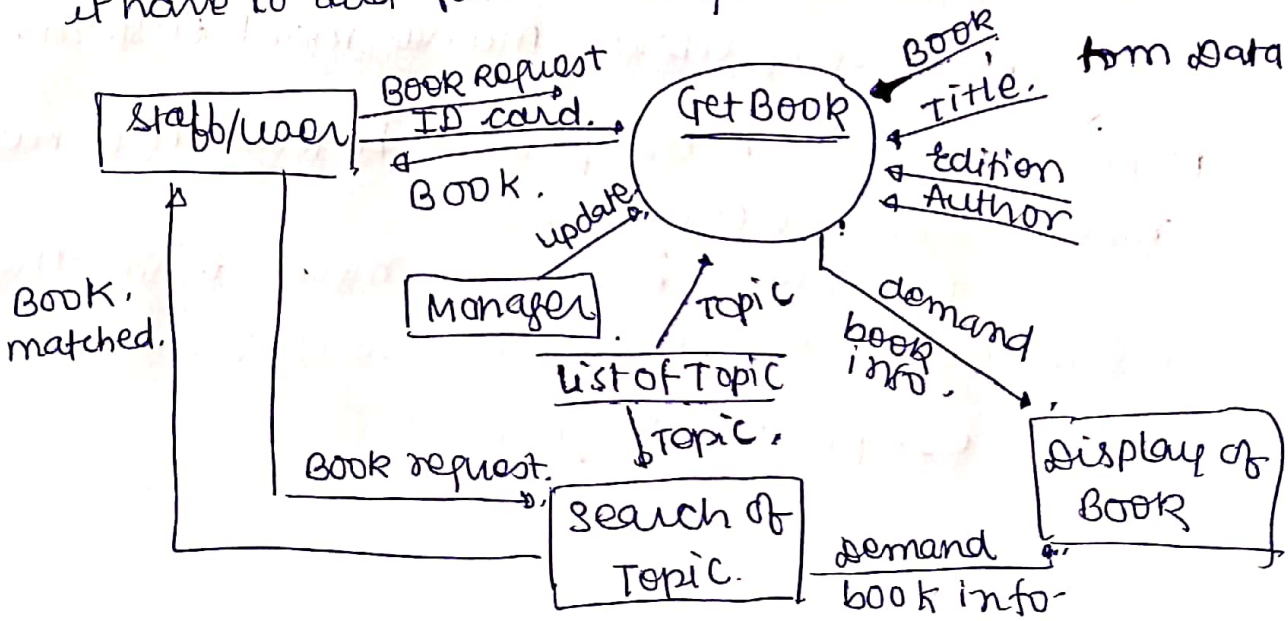
i)

level-0 DFD.



level-1 DFD

→ At this level, the system have to show more information with more detailed manner. So, it have to add functionality.



(ii). explanation of Library Management System. using Iterative Waterfall Model.

Iterative-Waterfall Model. consists of six phases.

1). Feasibility Study
2). Requirement gathering & Analysis.
3) design.
4). coding
5) Testing
6) maintanence.

from any phase if we get some error then we go to that phase (upper phases only) then correct the error by modifying the all the subsequent phases.

→ In case of Library Manggement system.

1) first we check is this project be feasible or not. means that we check for financially worthwile means under that cost & having required amount of techinal resources. for this projects

(2). Then after doing feasibility study we start gathering Information. for that we have to meet librarian & the staff for whom this system is going to be built. We can collect how they want this system to be. means what are their requirements & which type of design they are comfortable with.

After collection of all requirement we analyse the above gathered Information.

3) As we know which type of design they are comfortable with we can take a designer & make ready our design & starting working on the design.

4). After that coding starts & and we will choose data algorithm & data structured required for building the above system.

5) After that we started testing modules means start catching for error & resolving those error going to subsequent phases.

6), Maintanence phase. then came into existence where we have to check that is the system need maintanence or not.

These all are the phase details for library Management System.