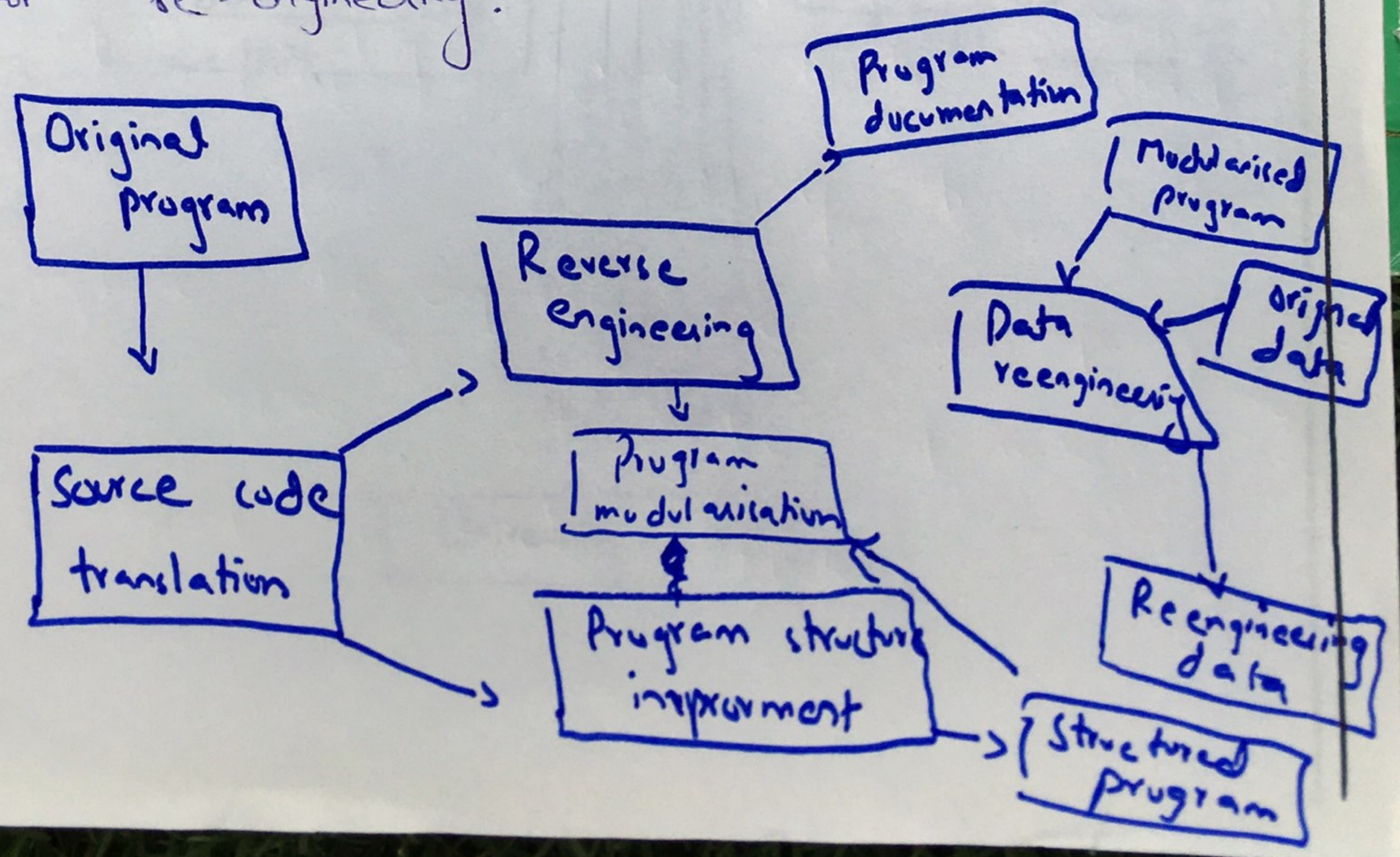


# Re-engineering cost factors:

- The quality of the software to be re-arranged (13)
- The tool support availability for engineering.
- Extent of the data conversion which is required.
- The availability of expert staff for re-engineering.





Q3 part b. What are the .....  
..... with the help  
of diagram.

(12)

Ans Software Re-engineering is the  
examination and alteration of a system  
to reconstitute it in a new form.  
The principle of reengineering when  
applied to the software development  
process is called software re-engineering.  
It affects positively at software  
cost, quality service to the customer  
and speed of delivery. In  
software Re-engineering, we are improving  
the software to make it more  
efficient and effective.



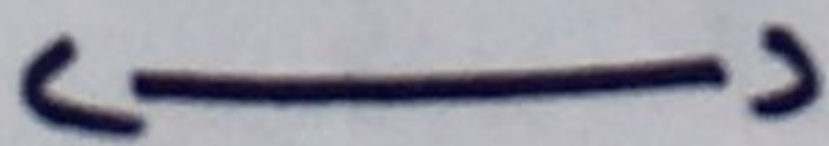
Adaptive maintenance or environmental adaptation:-

changing the software to adapt it to changes in its environmental e.g. (11)  
changes the other software system.

Perfective maintenance or functionality addition:-

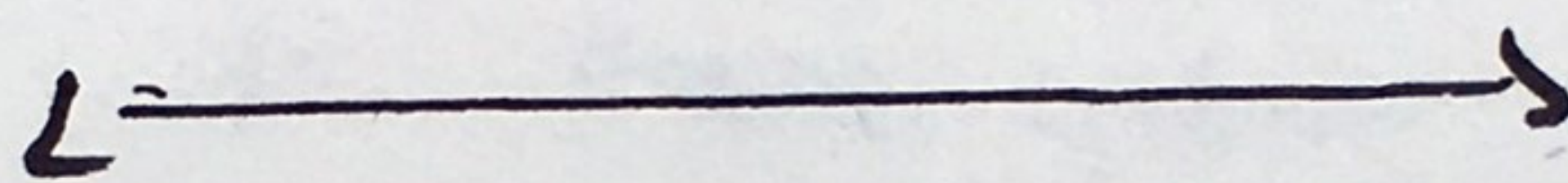
This involves adding new functionality or features to the system.

Example:- A reported fault in a system may be repaired by upgrading some other software & then adapting the system to use this new version.





strengthening security. White box testing is also known as clear box testing, Open box testing, structural testing, (10) Transparent box testing, code based testing and Glass box testing. It is usually performed by developers.



Q3 part 1 Briefly describe the three main types of software maintenance and distinguish b/w them?

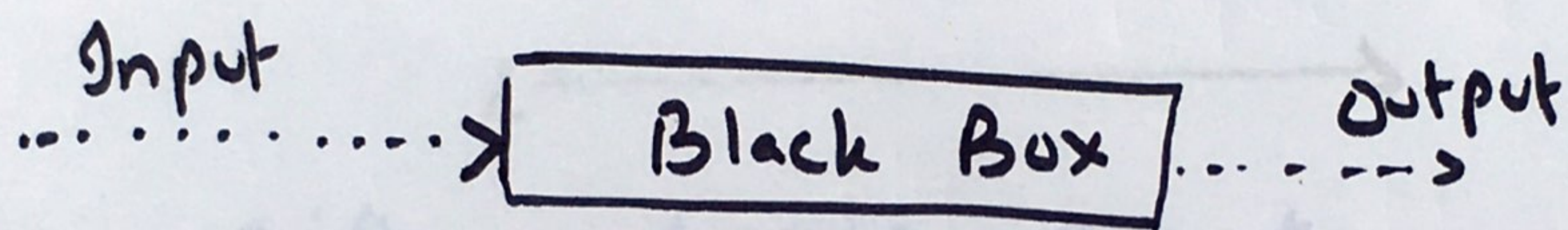
Ans The three main types of software maintenance are :-

a) Corrective maintenance or fault repair.:

The changes made to the system are to repair reported faults which may be program bugs or specification errors or omissions.

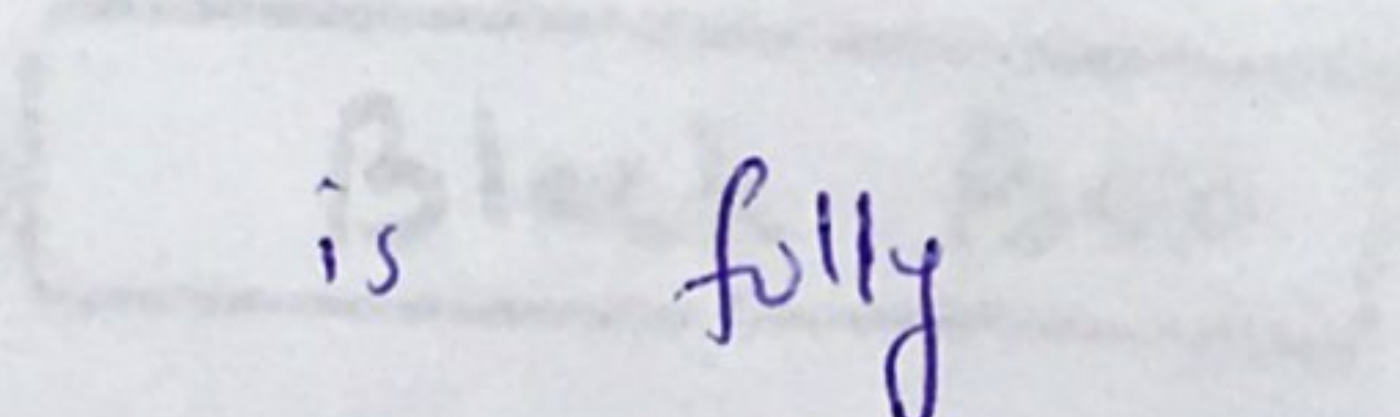


is based entirely on software requirements and specifications. In Black box testing (a) we just focus on inputs and output of the software system without bothering about internal knowledge of the software program.



iv) White Box testing:- is testing of a software solution's internal structure, design and coding. In this type of testing, the code is visible to the tester. It focuses primarily on verifying the flow of inputs and outputs through the application improving design and usability,

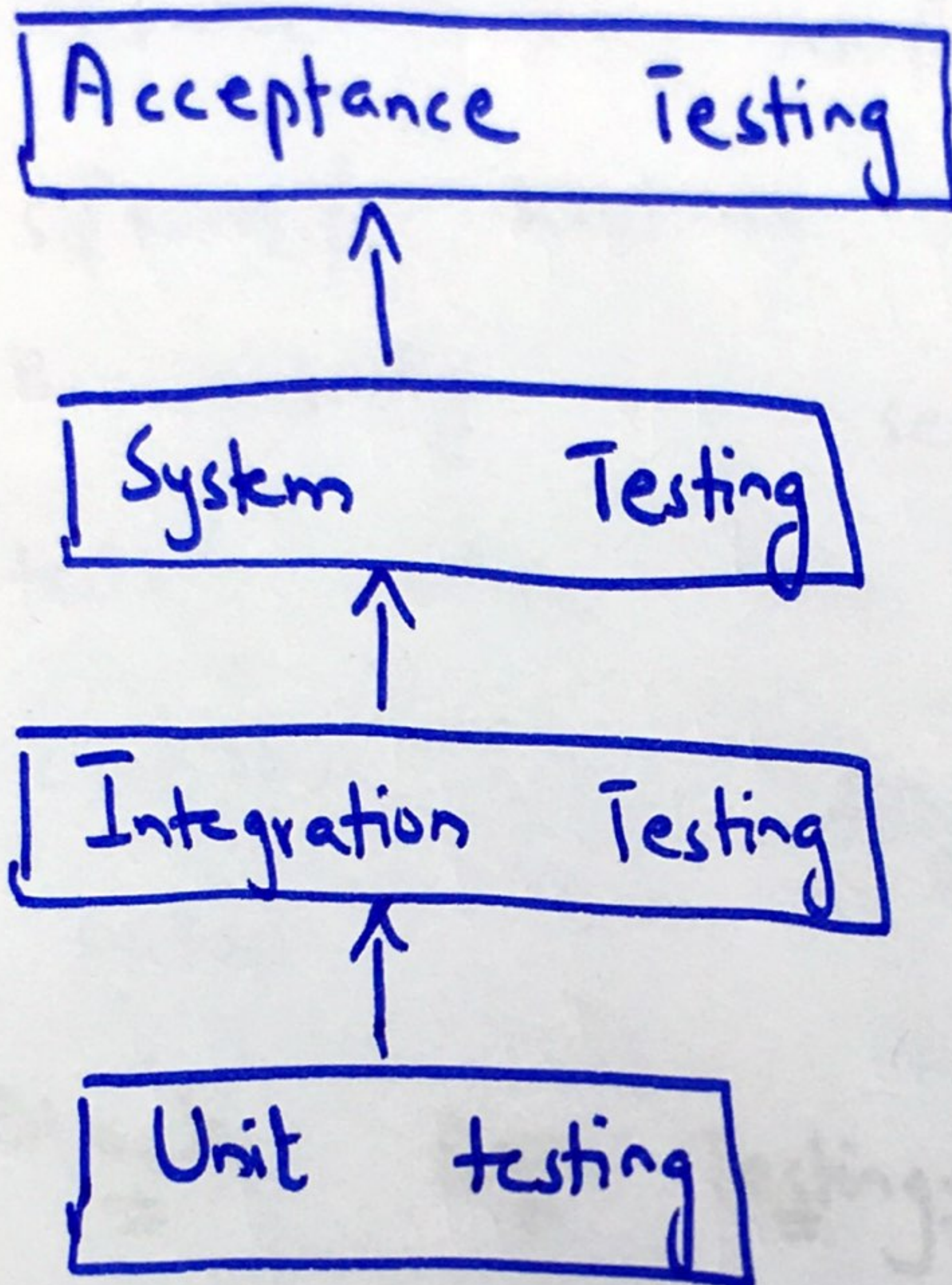


Usually the software is only one element of a larger computer based system. Ultimately the software is interfaced with other software/hardware system. System testing is actually a series of different tests whose sole purpose is to exercise  is fully computer-based system.

iii) Black Box Testing:- is defined as a testing technique in which functionality of the Application Under test is tested without looking at the internal code structure, implementation details and knowledge of internal paths of the software. This type of



Unit testing frameworks, drivers, stubs and mock/fake objects are used to assist in unit testing. (7)



ii) System testing: is a level of testing that validates the complete and fully integrated software product. The purpose of a system test is to evaluate to end-to-end system specifications.



Q Define the following terms;

(6)

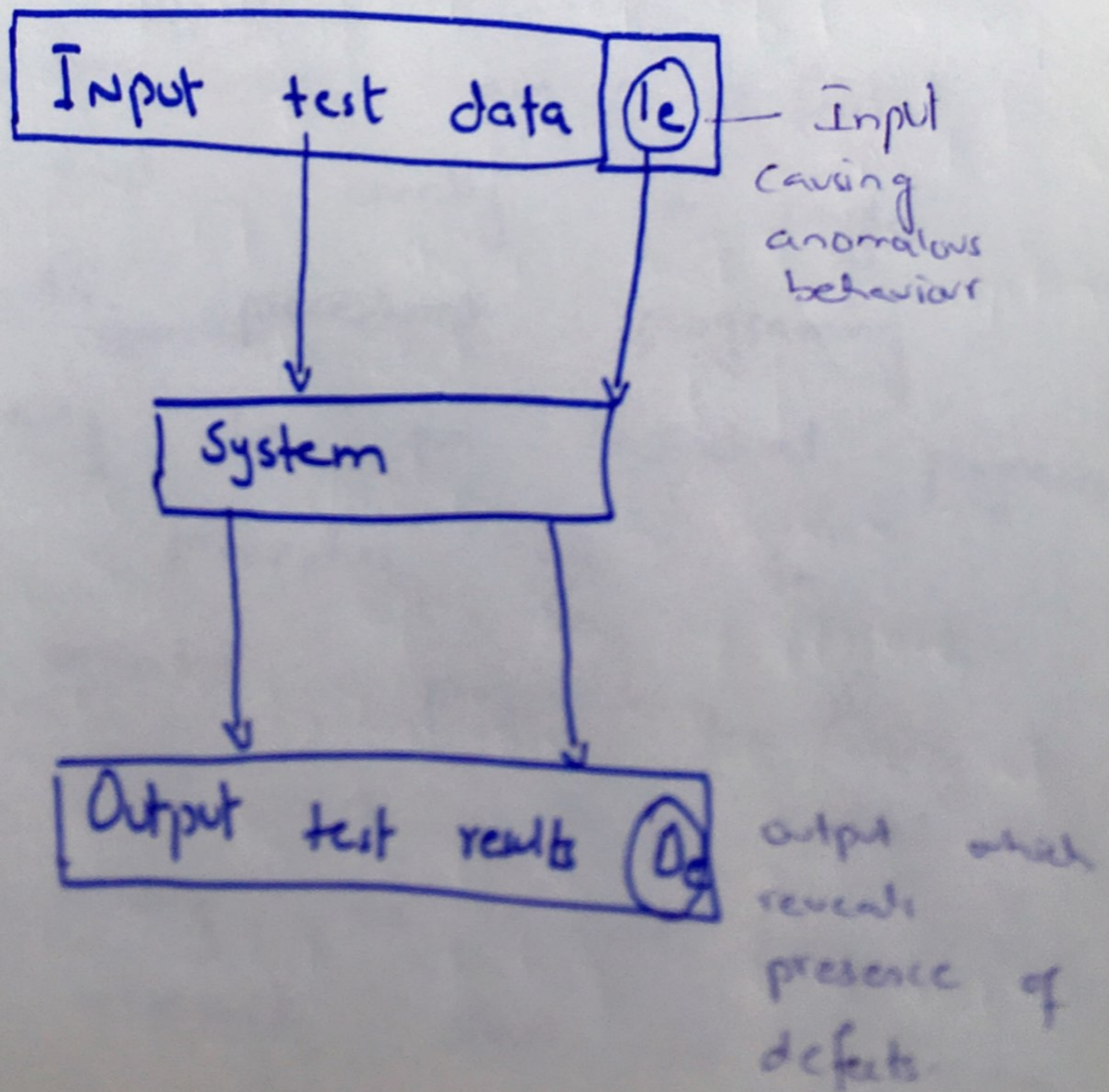
Unit testing:- is a level of software testing where individual units/components of a software are tested. The purpose is to validate that each unit of software performs as designed. A unit is a smallest testable part of any software. It is usually has one or a few inputs and usually a single output. In procedural programming a unit may be an individual program function procedure etc. In object oriented programming. A smallest unit is a method which may belong to a base / super class abstract class or derived.



to expose defects the test cases (5)

can deliberately obscure and needs not reflect how the system is normally used.

• A successful test is used to perform and expose a defect in a system.





static validation techniques.

## Goal of software testing:-

(4)

To demonstrate to the developer and customer that the software meets its requirements.

- leads to validation testing: you expect the system to perform correctly using a given set of test cases that reflect the system's expected use.
- A successful test shows that the system operates as intended.
- To discover attributes in which the behaviour of the software is incorrect, undesirable or does not confirm to its specification.
- Leads to defect testing: the test



Q<sub>2</sub> Explain why testing can only detect the presence of errors, not their absence? (3)

Ans Testing is intended to show that a program does what it is intended to do and to discover program defects before it is put in to use.

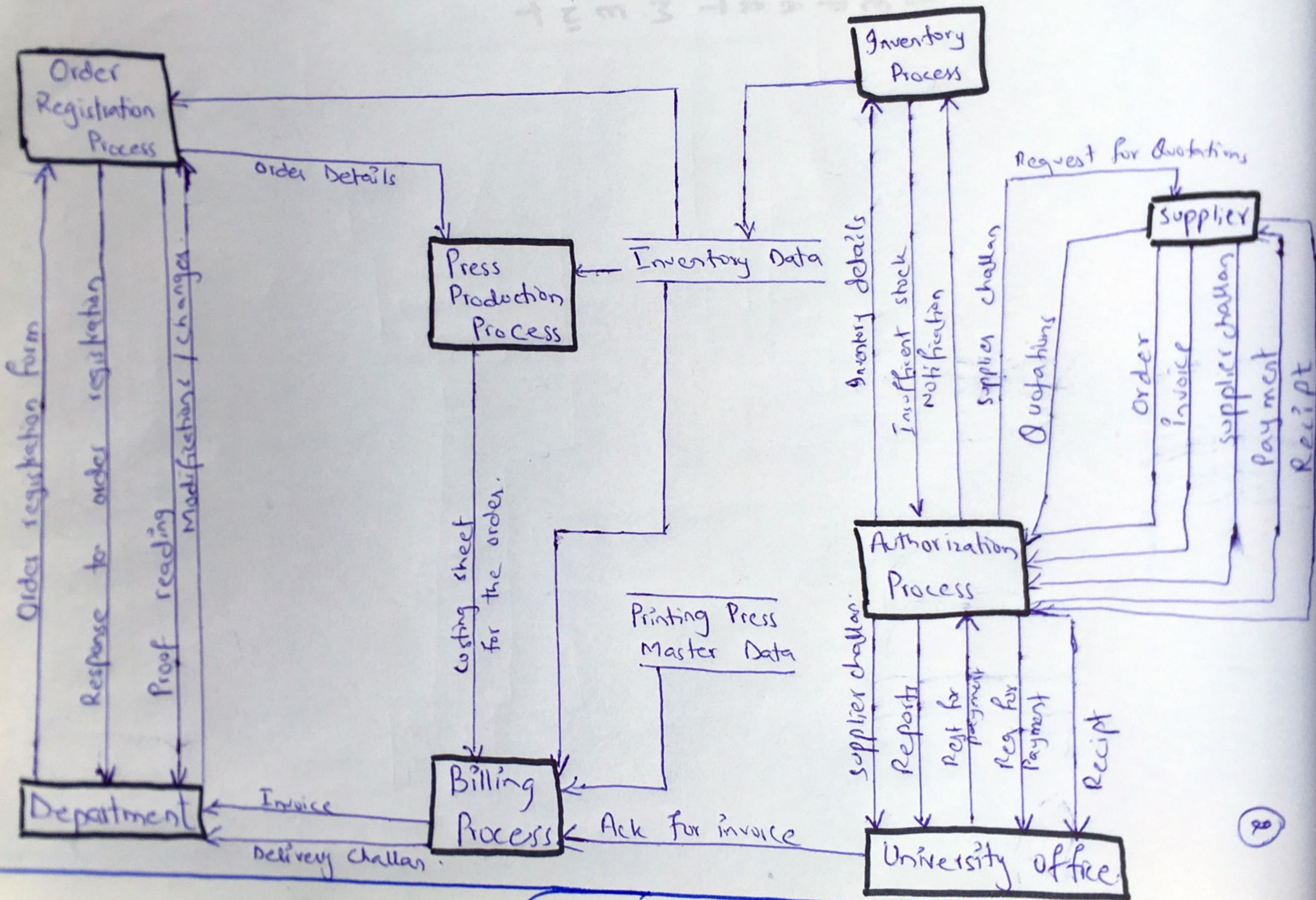
When you test software, you execute a program using artificial data. You check the results of data to test, run for errors, anomalies or information about the program's non-functional attributes. Testing can reveal the presence of errors but not in their absence.

Testing is part of more general verification and validation process, which also includes



Q1 part (b)

Existing first level DFD.





Q1  
part (2)

First copy  
Production  
Process

Order detail

(to press  
production process)

order completion  
process

coasting  
sheet

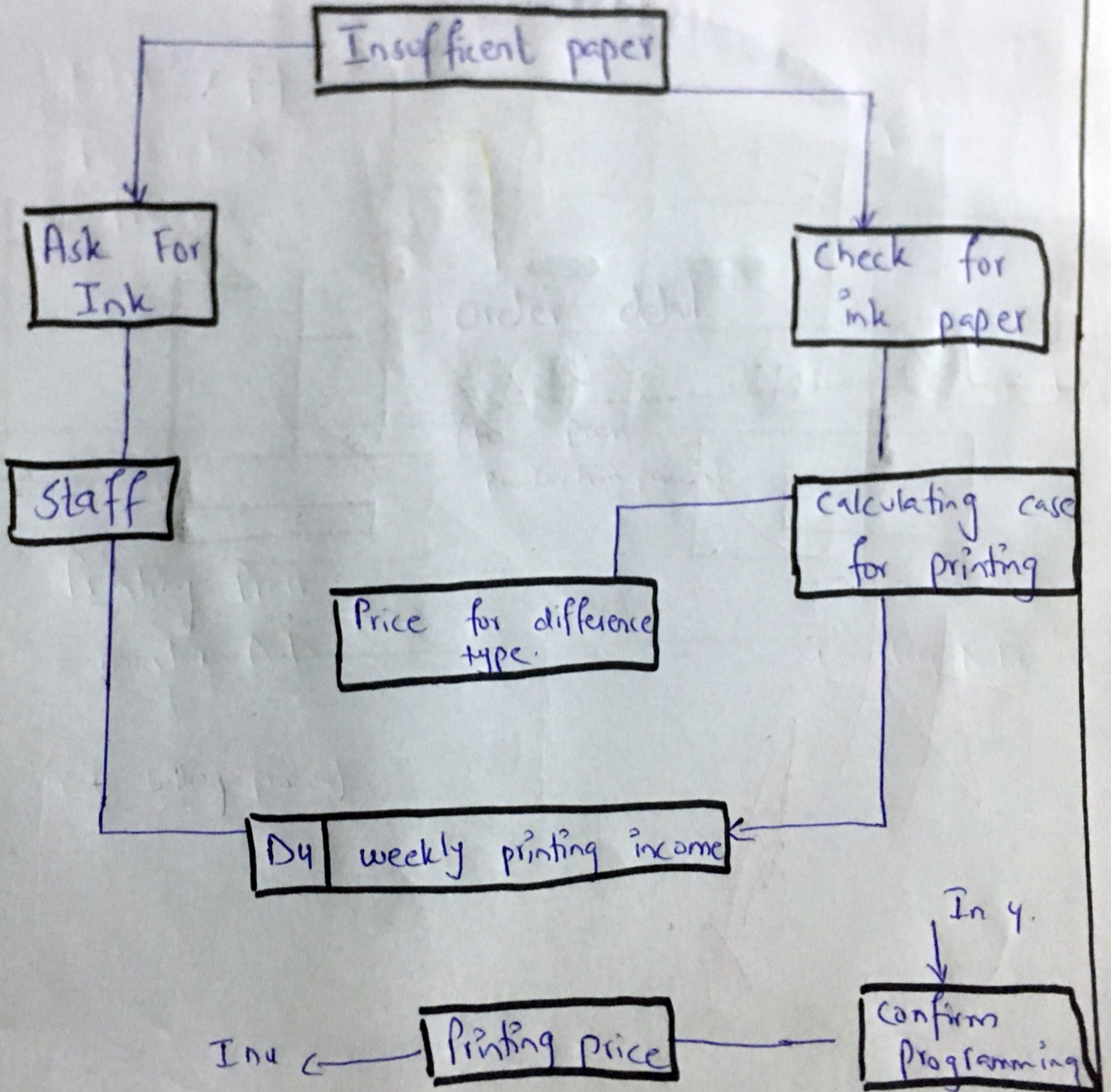
Printing Press  
master Data

(to billing process)

Inventory Data



Q1  
part 1-2





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Semester :- 4<sup>th</sup> Section :- A