

Date:...../...../20.....

6

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COURSE :- SOFTWARE ENGINEERING

Sec :- A

Semester :- 4

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Computer

insufficient ink paper

Ask for ink paper

ink paper sufficient

Start

checks for ink paper

Printing Config file to be print

Paper ink refill

Printing Config files to be print confirms suff ink / paper

weekly printing income

Calculate cost for printing

Printing price types

01 Price for different types

04 Weekly printing income

INU

Confirms payment

INU

Printing Price

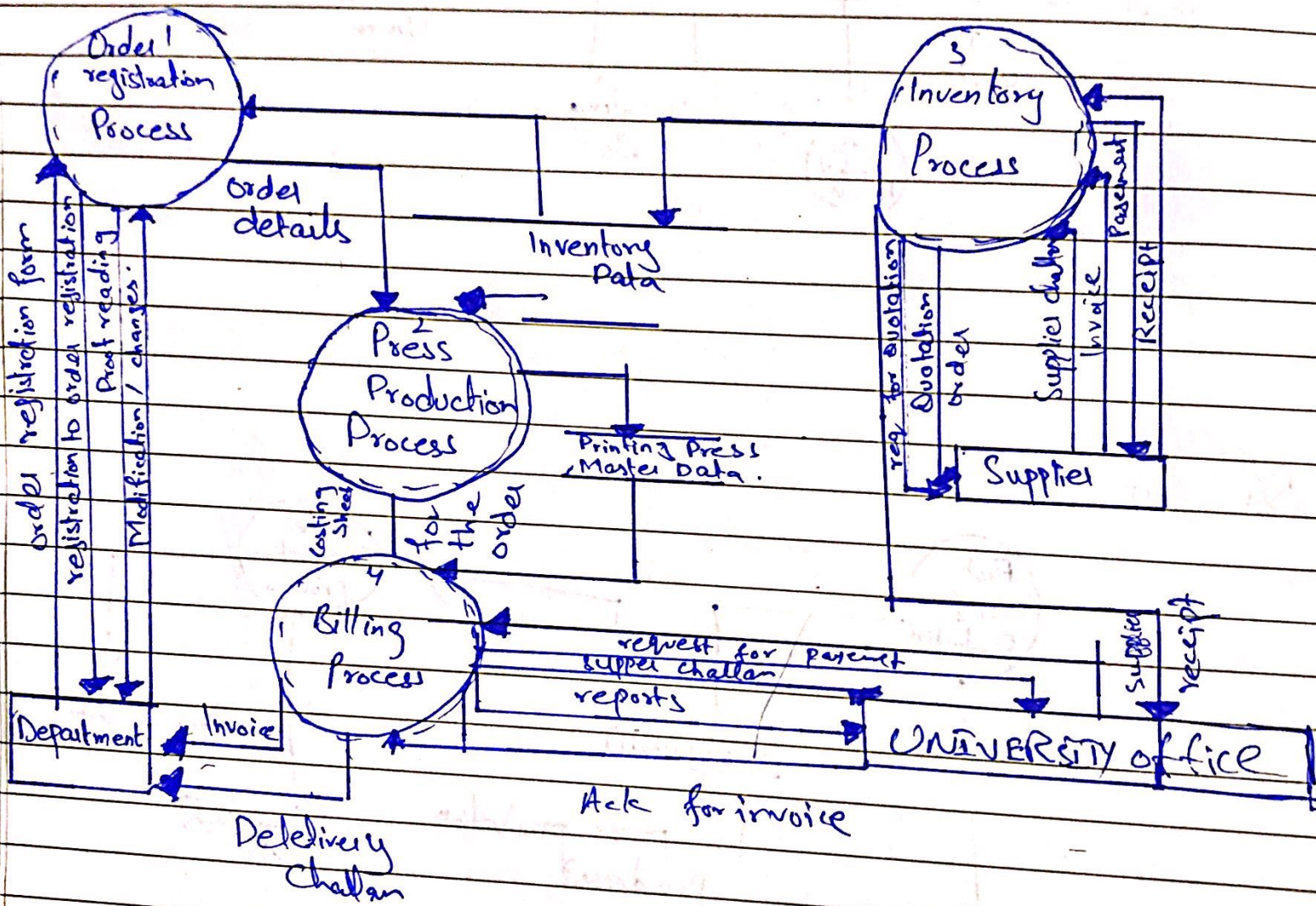
Confirms Payment

Arshi

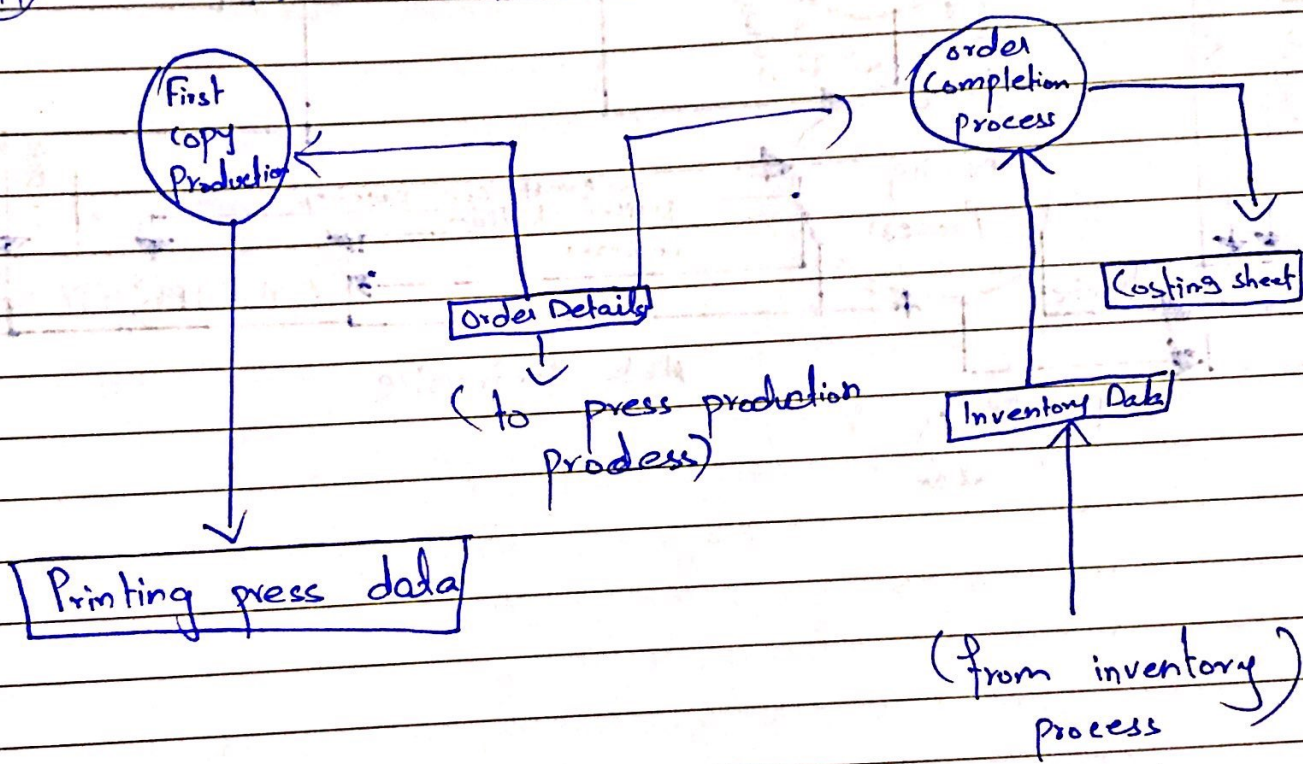
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M  T  W  T  F  S

Q No. 1 (11)



Q. (iii)



Q.No:-2a) The goal of software testing is to observe the software behaviour to meet its requirement expectation. In software engineering, Testing is a part of broader process of software verification and validation. It consists of set of activities, where the testers try to make the software behave anomalous in order to detect or anomaly to be later fix. Testing cannot demonstrate the faults other than specified in every circumstance. It is always that a test have overlooked could discover further problem with the system.

Ans) 2b) i) UNIT TESTING:-

Ans)

The most 'micro' scale of testing. Tests done on particular functions or code modules. Requires knowledge of the internal

program design and code. Done by programmer (not by testers).

Acceptance Testing

SYSTEM Testing

Integration Testing

Unit Testing

SYSTEM TESTING:-

It is a level of software testing where a complete and integrated software is tested. The purpose of this test is to evaluate the system's compliance with the specified requirements.

Acceptance testing

System Testing

Integration Testing

Unit Testing

## Black Box Testing:-

No knowledge of internal design or code required. Tests are based on requirements and functionality.

Not based on any knowledge of internal design or code. Covers all combined parts of a system.

Tests are data driven (Tests are based on putting some data to check the system).

It uncovers.

Incorrect or missing functions

Interface errors.

Errors in data structure or external database access

Performance errors

Initialization & termination errors

## White Box Testing:-

Based on knowledge of internal logic

of an applications code

Based on coverage of code statements, branches, paths,

conditions. Tests are logic driven.

It ensures

All independent paths within a module have been exercised at least once.

Exercise all logical decision on their true or false side

Execute all the loops at their boundaries & within their operational bounds.

Exercise internal data structures to ensure their validity.

Q3 a) The main types of software maintenance are as follows

1) Fault repair:-

Coding errors are usually relatively cheap to correct; Design errors are more expensive as they may involve rewriting several program components.

Requirements errors are the most expensive to repair because of the expensive system redesign which will be necessary.

2) Environmental Adaptation:-

This type of maintenance is required

when some aspect of the system's environment such as the hardware, the platform operating system or the support software changes the application system must be modified to adapt it to cope with these environmental changes.



### 3) Functionality Addition:-

This type of maintenance is necessary when the system requirements change in response to organizational or business change. The scale of the changes required to the software is often much greater than for the other types of maintenance.

Why it is difficult to differentiate b/w them?

In practice, there is not a clear cut distinction b/w these types of maintenance. When the system adopt to new environment. Then add functionality to take advantage of new environmental features. Software faults are often exposed because users use the system in unanticipated ways. These types of maintenance are recognized but a different person sometimes gives them different names. Corrective maintenance is

universally used to refer to maintenance for fault repair.

"Adaptive maintenance" sometimes means adopting to new environments & sometimes mean adopting the software to new requirements.

Perfective maintenance sometimes means perfecting the software by implementing new requirements in other cases it means maintaining the functionality of the system but improving its structure & performance.

QsbAns) SOFTWARE RE-ENGINEERING:-

Software Re-engineering is

the examination and alteration of a system to

reconstitute it in a new form. The principle of

Re-engineering is applied to the software development

system or 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 & effective.

### Re-Engineering Cost Factors:-

- 1) The quality of the software to be re-engineered.
- 2) The tool support availability for engineering.
- 3) Extent of the data conversion which is required.
- 4) The availability of expert staff for re-engineering.

