UNIVERSITI SAINS MALAYSIA

First Semester Examination
Academic Session 1999/2000

September 1999

CSI503 - Information System Analysis and Design

Duration : [3 hours]

INSTRUCTION TO CANDIDATE:

- Please ensure that this examination paper contains **FOUR** questions in **SIX** printed pages before you start the examination.

- Answer **ALL** questions.

- You can choose to answer either in Bahasa Malaysia or English.

ENGLISH VERSION OF THE QUESTION PAPER

1. (a) Define and compare the following terms:

    (i)   methodologies and techniques.

    (ii)   Statement of Work and Baseline Project Plan.

(20/100)

    (b)   Suppose you need to hire two system analysts. Explain to a Personnel department recruiter the skills that you seek in experienced system analysts and their role in the organization.

(20/100)

    (c)   (i)   Briefly identify and define the three most common categories of feasibility study.

             (ii)   What is the difference between net present value analysis and break-even analysis? Explain.

(25/100)

    (d)   Assume that you have a project with seven activities labeled A-G (below).

Activity	Time (ET)	Immediate Predecessors
A	5	-
B	3	A
C	4	A
D	6	C
E	4	B, C
F	1	D
G	5	D, E, F

    (i)   Draw a PERT chart for the tasks shown above.

    (ii)   Calculate the earliest expected completion time (T_E) and the latest expected completion time (T_L) for each task.

    (iii)   Identify the critical path and highlight (with bold line) it on the PERT chart in (i).

    (iv)   What would happen to the critical path, if activity C is no longer the immediate predecessor of activity E? Draw a PERT chart to reflect the changes in the former PERT chart in (i).

(35/100)

2. (a) Identify the traditional methods and modern methods that are used for determining requirements in the analysis phase.

(15/100)

(b) (i) Differentiate between logical modeling and physical modeling.

(ii) Why is logical modeling is more important in system analysis? Explain.

(20/100)

(c) Briefly discuss how to select among Structured English, decision table and decision trees for the purpose of logic modeling.

(30/100)

(d) The following figure is a DFD that describes a system to satisfy user requests for parts. Whenever a parts request is received, a search is made to determine whether the part is available in store. If so, the part is dispatched together with a dispatch notice. Otherwise a non-availability notice is sent.

Suppose the system is now being revised, as follows:

• Check with suppliers to see if any parts not in store can be obtained immediately. If so, a purchase order is made out to the supplier and a copy is sent to the user. The supplier then dispatches the parts to the user. The user sends the dispatch notice back to be matched against the purchase order.

• Regularly check the inventory and place purchase orders whenever the number of parts is below reorder level.

Draw and amend the DFD below to include the above changes.
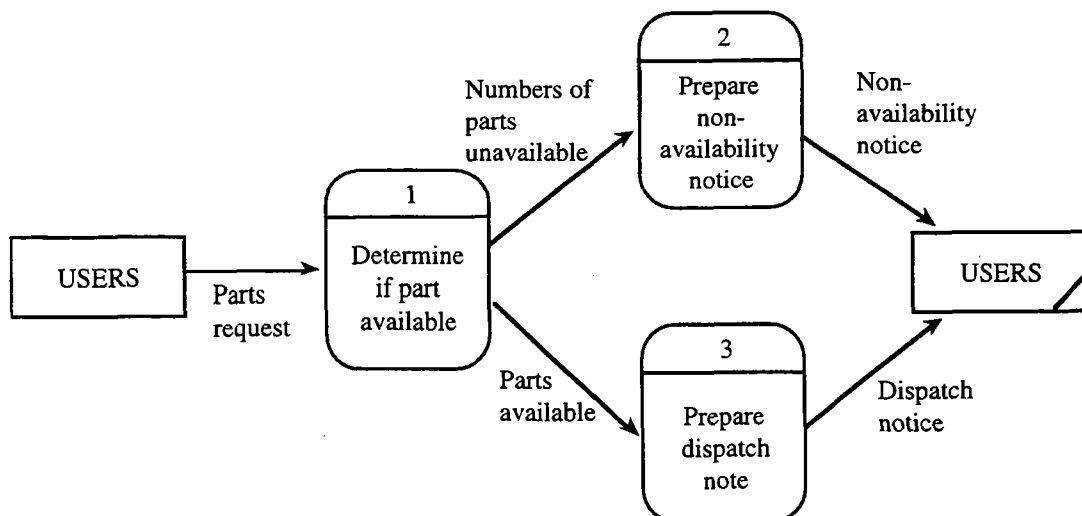
(35/100)

3. (a) Define an appropriate input processing method and medium for each of the following inputs:

   (i) Customer magazine subscription.

   (ii) Bank account transactions.

   (iii) Employee time cards.

   (20/100)

   (b) List three types of anomalies that may arise during normalization.

   (10/100)

   (c) To what extent should the system user be involved during user interface design? What would you do for the user? What would you ask the user to do for you? Detail a strategy that consists of specific steps that you and the system user would follow.
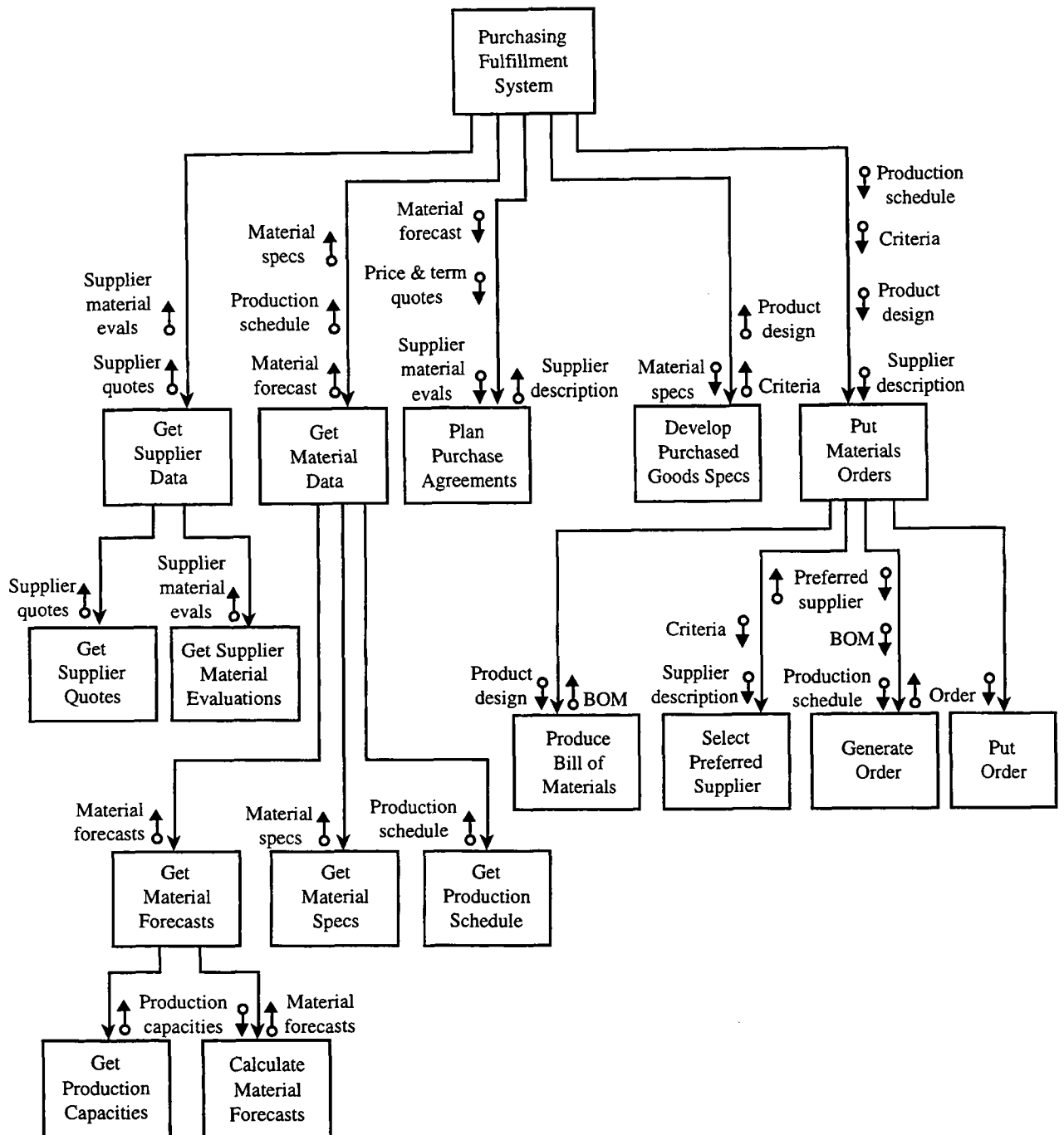
   (20/100)

   (d) Using transform analysis, convert the level-0 data flow diagram below to a refined structure chart.
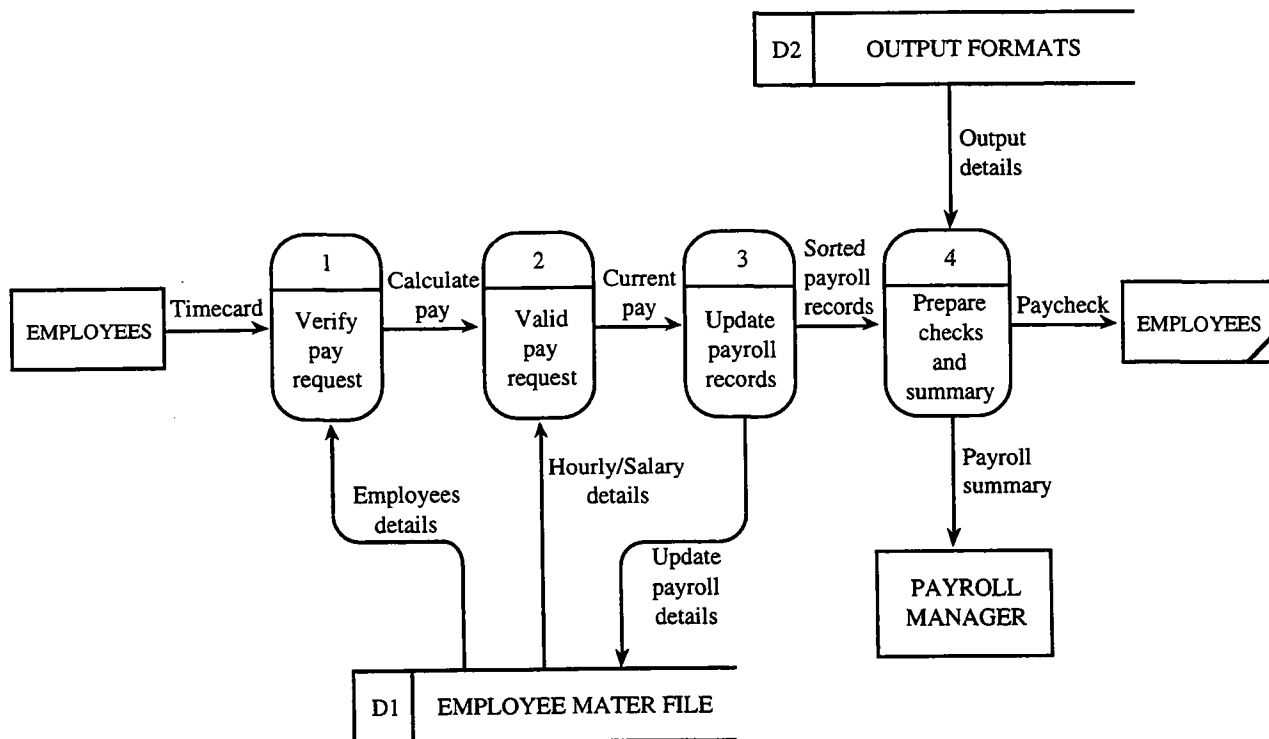
   (25/100)

(e)   Study the Figure below, a structure chart for a Purchasing Fulfillment System.

(i) How many different types of coupling can you identify in the structure chart? If you find evidence of more types of coupling than simple data coupling, how can you convert all types of coupling to data coupling?

(ii) How many different types of cohesion are represented by the structure chart's functions? If you find evidence of more types than simple functional cohesion, what can you suggest to convert all types of cohesion to functional cohesion?

(25/100)

4. (a) Define the following terms:

   (i) Walkthrough

   (ii) Use case

   (iii) Self-training

   (iv) Mean time between failures (MTBF)

   (v) Beta test

(25/100)

   (b) (i) Compare and contrast the object-oriented analysis and design models with the structured analysis and design models.

   (ii) What are the different types of maintenance and how do they differ?

(25/100)

   (c) Recently a large sales company computerized their sales operation to improve their profit and speed up their services. This company has many branches at different locations. The company introduced the network concept to connect the HQ with all branches. They purchased the required hardware and software to implement the computerized system. Now, the company appointed you as an IT specialist to implement the above system in their company.

   (i) State the appropiate change over methods that can be used as part of the systems implementation.

   (ii) Discuss the potential strengths of the method you adopted.

(25/100)

   (d) The internet is a network of networks. What type of distributed network architecture is used on the internet?

(25/100)

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