

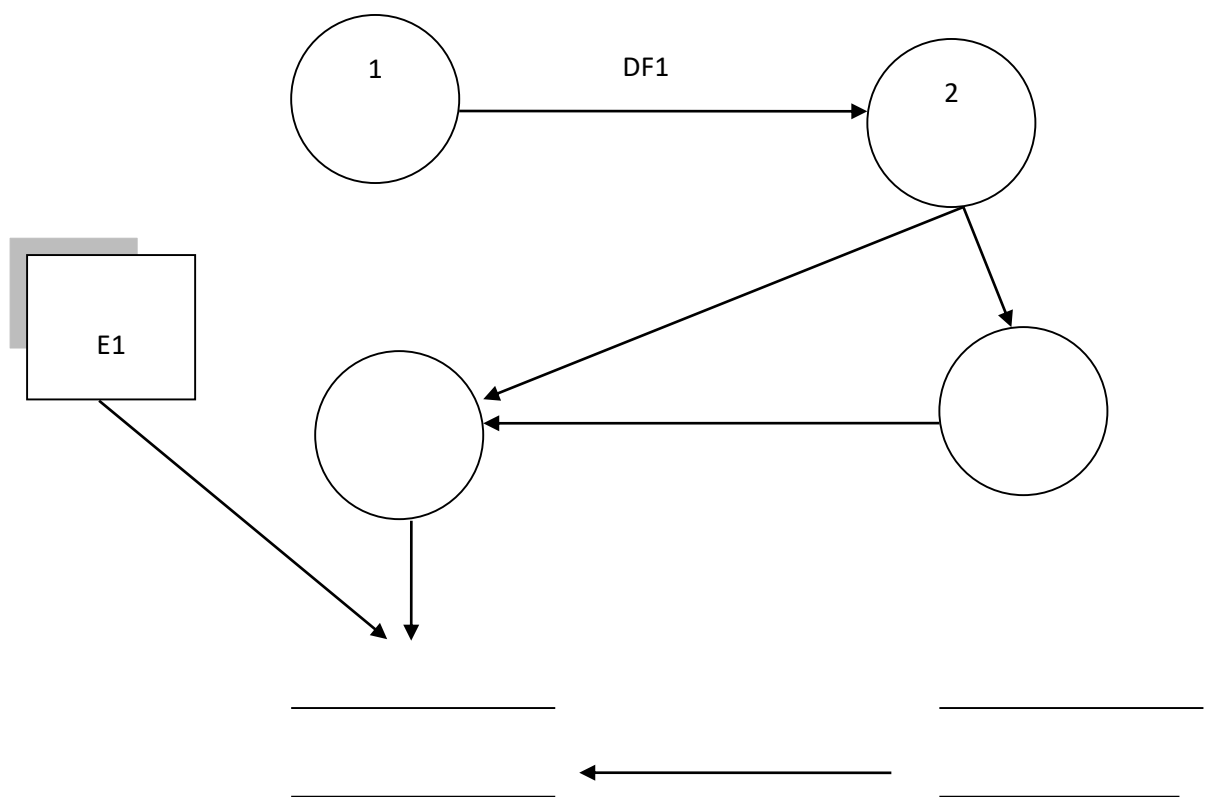
JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

COMPUTER SCIENCE

SYSTEMS ANALYSIS AND DESIGN

TIME: 2hrs

1. Data Flow Diagram (10 Marks)



- a) List as many errors as you can find in the above data flow diagram.
- b) Draw a new data flow diagram to correct the errors
(You may add any new process, data store, data and entity as necessary)

2. Given the following narrative description (30 Marks)

Read the JKUAT Hospital Patient Administration System case below and answer the questions that follow.

JKUAT Hospital Patient Administration System

When a GP refers a patient for specialist consultancy, the details are entered into the patient file, or if already on file noted as requiring an appointment.

Every afternoon the administrators' office checks the file and arranges appointments as necessary, by referring to the clinic schedule. Notification of the appointment is sent to the patient, and a list for the session is sent to the specialist.

Following a consultation the specialist writes up the notes, which are added to the patient file. If admission is necessary, the specialist adds the patient's name to the waiting list, including a code for urgency.

Ward lists are maintained, so that every week the administrators' office can check the waiting list against predicted bed availability and issue call notices to patients, and a listing to specialists, for admissions in 1 or 2 weeks' time. This is always difficult because admissions never go according to schedule, and ward staff have to Attempt to keep lists up to date when something goes wrong.

A final complication is requests from GPs for emergency admissions. These have to be dealt with as they arise, and require an entry in the patient file as usual, then a check on the ward list to find a place. Sometimes a cancellation has to be made, and the patient notified. Notification is sent to the specialist.

Do the following for the required Information System. State any assumptions you make.

- a. Draw the Context Diagram for the JKUAT Hospital Patient Administration System.
- b. Develop the levelled DFDs.

3. Use a **decision table** to represent the decision logic in the following situation. [20 Marks]

The Swell Store employs a number of salesmen to sell a variety of items. Most of these salesmen earn their income from a commission, paid on the items they sell, but a few are salary-plus-commission employees; that is, they receive a fixed salary regardless of the quantity of items they sell, plus a commission on certain items. The Swell Store sells several different lines of merchandise, some of which are known as standard items (a can of tomato soup, for example) because they are widespread and do not require any creative sales techniques; in addition, there are bonus items that are highly profitable but difficult to sell (a gold plated-diamond, diamond-studded Cadillac, perhaps). The standard and bonus items generally represent the low and high ends of the price spectrum, sandwiching a greater number of items in the middle of the spectrum.

Customers, also, are categorized. Some are known as regulars, because they do business so often that no creative selling is required. Most of the customers, however, do a small amount of business at the Swell Store, and are likely to walk in right off the street, buy something, and then disappear forever.

The management's commission policy is as follows: If a non-salaried employee sells an item that is neither standard nor bonus to someone other than a regular customer, he receives a

10 percent commission, unless the item costs more than \$10,000, in which case the commission is 5 percent. For all salesmen, if a standard item is sold, or if any item is sold to a regular customer, no commission is given. If a salaried salesman sells a bonus item, he receives a 5 percent commission, unless the item sells for more than \$1,000, in which case he receives a flat \$25 commission. If a non-salaried salesman sells a bonus item to someone other than a regular customer, he receives a 10 percent commission, unless the item sells for more than \$1,000, in which case he receives a flat commission of \$75.