**Foundation Certificate in Information Technology**

**System Analysis & Design**

**Term 02 – 2022**

**Tutorial 08 – Process Modeling & Data Modeling**

1. Draw the context diagram for the given scenario.

You want manage sales of a juice bar through an automated system. When a customer selects a juice of his choice, the order will be taken. The order is processed according to the cash amount he inputs, and the juice will be served. In addition to handling customer orders, the system should be able to

* Forecast sales when the production schedule is given by the employee.
* Order raw materials from vendors and update the system with the received goods and pay for the goods.
* Calculate and process the payment for employees based on the working hours.

1. Draw a DFD (Data Flow Diagram) analyzing the following process.

Students send in an application form containing their personal details, and their desired course. The university checks whether the student has necessary academic qualifications. If the course is available, the student would be enrolled in the course, and the university confirms the enrolment by sending a confirmation letter to the student. If the student does not meet the academic requirements or if course is unavailable, the student would receive a rejection letter.

1. Draw a context diagram for Pizza Hub.

‘Pizza Hub’ is a restaurant which sells variety of pizzas to their customers. They want to install a new system to manage their telephone orders. When a customer calls, their phone number will be tracked, and system checks whether the customer is new or regular. If the customer is new, the system prompts for their name, address, email and their order. If regular customer calls, the system takes in the order details. Once the order is taken, the total amount including tax and delivery charges is calculated. Then the receipt will be emailed to the customer and the order would be given to the cook. In addition, the system sends promotional offers to the regular customers. The management receives weekly report on telephone orders.

1. Given Below is a description of a general supermarket system. Analyze it and a draw a context diagram.

A supermarket needs to develop the following software to encourage regular customers. For this, the customer needs to provide his/her address, telephone number and the National Identity Number (NIC). Each customer who registers for this scheme will be given a unique customer identity number (CIN) by the system. A customer can present their CIN to the checkout staff when he makes any purchase. In this case, the value of his purchase is credited against his CIN. At the end of each year, the supermarket intends to award surprise gifts to three customers who made the highest total purchase over the year. The system generates and sends the winner’s list to manager. The entries against the CIN are the reset to 0 on 31st Dec.

**Assume that salesperson responsible for entering the data to the system.**