

**ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)  
ORGANISATION OF ISLAMIC COOPERATION (OIC)**

**Department of Computer Science and Engineering (CSE)**

**MID SEMESTER EXAMINATION**

**SUMMER SEMESTER, 2018-2019**

**DURATION: 1 Hour 30 Minutes**

**FULL MARKS: 50**

**CSE 4407: System Analysis and Design**

**Programmable calculators are not allowed. Do not write anything on the question paper.**

There are **4 (four)** questions. Answer any **3 (three)** of them.

Figures in the right margin indicate marks.

1. a) IUTech is an E-commerce website for computer accessories. Customers place orders by telephone, by mailing an order form included with each catalog, or through the Web site. 8  
A summary of the Business Activities in IUTech:
  - When customer orders come in, the item master and the customer master files are both updated.
  - If an item is out of stock, the inventory control department is notified.
  - If the order is from a new customer, a new record is created in the customer master file.
  - Picking slips are produced for the customer order and sent to the warehouse.
  - A shipping statement is prepared.
  - The process of shipping a customer order involves getting the goods from the warehouse and matching up the customer shipping statement, getting the correct customer address, and shipping it all to the customer.
  - The customer statement is generated and a billing statement is sent to a customer once a month.
  - An accounts receivable report is sent to the accounting department.

Based on the given information, draw the following diagrams for IUTech E-commerce.

  - i. Context Diagram
  - ii. Diagram 0
- b) What is SDLC? Describe the actions the system analyst takes in each step of SDLC 6
- c) Differentiate between Probes and Bipolar questions. 2.66
2. a) What is JAD (Joint Application Design)? Discuss the people who are involved and their respective roles in JAD. 7
- b) Catherine's Catering is a small business that caters meals, receptions, and banquets for business and social occasions such as birthdays and weddings etc. At first it was a small company. Catherine talked to the customers over the phone to determine the number of people, the type of meals, and other information necessary to cater an event. Catherine was able to manage the business using spreadsheets and word processing but found difficulty in keeping up with endless phone calls about what types of meals were available, changes to the number of guests attending the event, scheduling part time employees etc. 7  
  
Create a formal problem definition from the above scenario. The problem definition should contain Problem statement, Issues with proper weight, objectives, requirements and constraints.
- c) What are the different ways of arranging questionnaires? 2.66

3. a) What are the alternative choices of software for a system analyst? Give advantages and disadvantages for each alternative. 5
- b) Write short notes on the following: 3×2
- Miracle and Black hole.
  - Logical and physical Data Flow Diagrams.
- c) What is feasibility study? Explain the main areas of feasibility. 5.66

4. a) Draw an ER diagram to model the application with the following assumptions: 7
- We have a set of teams, each team has an ID (unique identifier), name, main stadium, and to which city this team belongs.
  - Each team has many players, and each player belongs to one team. Each player has a number (unique identifier), name, Date of Birth, start year, and shirt number that he uses.
  - Teams play matches, in each match there is a host team and a guest team. The match takes place in the stadium of the host team.
  - For each match we need to keep track of the following:
    - The date on which the game is played.
    - The final result of the match.
    - The players participated in the match. For each player, how many goals he scored, whether or not he took yellow card, and whether or not he took red card.
    - During the match, one player may substitute another player. We want to capture this substitution and the time at which it took place.
  - Each match has exactly three referees. For each referee we have an ID (unique identifier), name, Date of Birth, years of experience. One referee is the main referee and the other two are assistant referee.

Design an ER diagram to capture the above requirements. State any assumptions you have made that affects your design. Make sure cardinalities and primary keys are indicated.

- b) Define the following terms and mention how to solve them: 2×3
- Leniency
  - Average tendency
  - Halo effect
- c) Differentiate between the nominal and interval measurement scale with examples. 3.66