ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)
Department of Computer Science and Engineering (CSE)

MID SEMESTER EXAMINATION **SUMMER SEMESTER, 2015-2016**
DURATION: 1 Hour 30 Minutes **FULL MARKS: 75**

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.

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1. a) List the advantages of using system analysis and design techniques in approaching computerized information systems for business. 6
   b) What is JAD? Discuss on the conditions and people involved in JAD? Also shed light on its benefits and drawbacks. 6
   c) List and briefly define the seven phases of the system development life cycle (SDLC). 7
   d) Define what is meant by the agile approach. Write short notes on different stages followed in this approach. 6

2. a) What are CASE tools used for? What are the differences between upper and lower CASE tools? Give your answer with appropriate examples. 7
   b) 'Perfect Pizza' wants to install a system to record orders for pizza and chicken wings. When regular customers call 'Perfect Pizza' over the phone, they are asked for their phone number. When the number is typed into a computer, the name, address, and last order date is automatically brought up on the screen. Once the order is taken, the total, including tax and delivery, is calculated. Then the order is given to the cook. A receipt is printed. Occasionally, special offers (coupons) are printed so the customer can get a discount. Drivers who make deliveries give customers a copy of the receipt and a coupon (if any). Weekly totals are kept for comparison with last year's performance. 12
   Draw context level and diagram 0 DFD for 'Perfect Pizza'. You should split any process of Diagram 0 to its child diagram if necessary.
   c) Describe Leniency, Central tendency and Halo effect of scales with their respective solutions. 6

3. a) What do you mean by 'Data Dictionary' from the perspective of system analysis and design? Discuss at least four reasons for compiling a complete data dictionary. 7
   b) What are the preparations that a system analyst should take prior to interviewing someone? 5
   c) Homework assignment distribution and collection (HACS) is an integral part of any educational system. Today, this task is performed manually. An educational institution wants to automate the HACS which will be used by the instructor to distribute the homework assignments, review the student's solutions, distribute suggested solution, and distribute student grades on each assignment. HACS will also help the students by automatically distributing the assignments to the students, provide a facility where the students can submit their solutions, remind the students when an assignment is almost due, and remind the students when an assignment is overdue. Create Logical and Physical Data Flow Diagram for the above system. Discuss the differences between those two diagrams. 8
   d) List and discuss five conventions that should be followed when using structured English. 5

4. a) A computer supply firm called, 'True Disk' has set up accounts for countless businesses in Dosville. True Disk sends out invoices monthly and will give discounts if payments are made within 10 days. The discounting policy is as follows: If the amount of the order for computer supplies is greater than $1,000, subtract 4 percent for the order; if the amount is between $500 and $1,000, subtract a 2 percent discount; if the amount is less than $500, do not apply any discount. All orders made via the Web automatically receive an extra 5 percent discount. Any special order (computer furniture, for example) is exempt from all discounting. Develop a decision table for 'True Disk' discounting decisions, for which the condition alternatives are limited to Y and N. 8

b) What is 'Spiral Model' in context of system analysis and design? Explain your answer with both advantages and disadvantages of this model. 7

c) Suppose we want to develop software for an alarm clock. The clock shows the time of day. Using buttons, the user can set the hours and minutes fields individually, and choose between 12-hour and 24-hour display. It is possible to set one or two alarms. When an alarm fires, it will sound some noise. The user can turn it off, or choose to 'Snooze'. If the user does not respond at all, the alarm will turn off itself after 2 minutes. 'Snoozing' means to turn off the sound, but the alarm will fire again after some minutes of delay. This 'Snoozing time' is pre-adjustable. 10

Draw a Use-case Diagram for the software.