



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION SEMESTER I SESSION 2010/2011

COURSE NAME : FUNDAMENTAL OF SYSTEM ANALYSIS AND DESIGN

COURSE CODE : DIT 2023/DAT 20203

PROGRAMME : 2 DIT

EXAMINATION DATE : NOVEMBER/DECEMBER 2010

DURATION : 2 1/2 HOURS

INSTRUCTIONS : ANSWER **ALL** QUESTIONS IN SECTION A AND SECTION B AND **FOUR (4)** QUESTIONS FROM SECTION C

THIS QUESTION PAPER CONSISTS OF SEVEN (7) PAGES

SECTION A

TRUE/FALSE. State whether each of the following statements is TRUE or FALSE.

- Q1** Data-flow diagramming (DFD) is one of several structured analysis techniques used to increase software development productivity.
- Q2** A data-flow diagram (DFD) is a graphical tool that allows analysts to illustrate the flow of data in an information system.
- Q3** Logic modeling graphically represents the processes that capture, manipulate, store, and distribute data between a system and its environment and among components within a system.
- Q4** Assume shipment data are entered into a logbook once shipments are received at the company's warehouse; the logbook is represented on a data-flow diagram as a sink.
- Q5** A deliverable from conceptual data modeling is a set of entries about data objects to be stored in the project dictionary or repository.
- Q6** When constructing a data model, the analyst needs to know how, when, and where data are processed.
- Q7** Cardinality is the number of instances of entity B that can (or must) be associated with each instance of entity A.
- Q8** A relationship must be turned into an associative entity when the associative entity has other relationships with entities besides the relationship that caused its creation.
- Q9** One of the purposes of logical and physical database design is to choose data-storage technologies that will efficiently, accurately, and securely process database activities.
- Q10** Normalization helps build a data model that is simple, not redundant, and requires minimum maintenance.

SECTION B

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- Q11** Human interface design is performed during _____.
- a) Systems design.
 - b) Requirements structuring.
 - c) Systems analysis.
 - d) Systems implementation and operation
- Q12** Which of the following is the standard method of gathering and displaying information on the Internet?
- a) Dialogue interaction
 - b) VRML interaction
 - c) Menu selection
 - d) Form interaction
- Q13** Which of the following is an example of a form?
- a) Invoice
 - b) Pie chart
 - c) Weekly sales summaries by region and salesperson
 - d) Automated teller machine transaction layout
- Q14** Which of the following best describes a business document that contains only predefined data?
- a) Coupon
 - b) Turn-around document
 - c) Report
 - d) Electronic spreadsheet
- Q15** Each of the following is true statements **EXCEPT** _____.
- a) A form typically contains data from only one record.
 - b) Every output form or report is a data flow produced by a process on a data-flow diagram
 - c) Systems inputs and outputs are produced during the systems implementation and operation phase of the systems development life cycle.
 - d) Forms have a stylized format and are usually not in simple rows and columns
- Q16** An entity whose primary key depends on the primary key of another entity is called a _____.
- a) dependent entity.
 - b) candidate entity.
 - c) weak entity
 - d) referential entity
- Q17** Relationships between instances of a single entity type are referred to as _____.
- a) dependent relationships
 - b) binary relationships
 - c) singular relationships
 - d) recursive relationship

- Q18** Each regular entity type in an E-R diagram is transformed into a _____.
- a) relation
 - b) column in a relation
 - c) tuple in a relation
 - d) database
- Q19** The transformation of an E-R diagram into normalized relations and then the merging of all the relations into one final, consolidated set of relations require all of the following steps **EXCEPT** _____.
- a) normalize the relations
 - b) merge the relations
 - c) structure requirements
 - d) represent relationships
- Q20** For a unary M:N relationship:
- a) separate relations for the class and for each subclass are created; primary and foreign keys are established for each class.
 - b) the entity type is modeled as one relation; a separate relation is created to represent the M:N relationship; the new relation has a composite key that consist of two attributes that both take their values from the same primary key.
 - c) the entity type and the M:N relationship are modeled as one relation; a composite key consisting of two attributes that both take their values from the same primary key is used as the primary key for the relation
 - d) the primary key of the entity on the one side of the relationship serves as a foreign key in the relation on the many side of the relationship.

SECTION C

Answer **FOUR** questions only from **FIVE** questions below.

- Q21** (a) Requirements determination method is divided into two, traditional and modern methods. List **TWO (2)** examples for each method.
- (i) Traditional method
 - (ii) Modern method
- (2 marks)
- (b) Explain **FOUR (4)** characteristics to be a good system analyst.
- (4 marks)
- (c) Give **TWO (2)** specific deliverables for each types of deliverables below
- (i) Information collected from conversations with users
 - (ii) Existing documents and files
- (4 marks)
- (d) Joint Application Design (JAD) is a structured process in which users, managers, and analysts work together for several days in a series of intensive meetings to specify or review system requirements.
- (i) How does JAD better than traditional information-gathering techniques?
(2 marks)
 - (ii) Give **THREE (3)** weaknesses of JAD.
(3 marks)
- Q22** (a) Explain what the term Data Flow Diagram (*DFD*) *consistency* means and provide an example.
(3 marks)
- (b) Explain what the term *DFD completeness* means and provide an example.
(3 marks)
- (c) You have been asked to create a Web page for your lecturer to describe his or her course and provide current class information (eg syllabus, lecture notes, assignments, readings and others).
- i) Draw a DFD context diagram
(4 marks)
 - ii) Draw a DFD level 0 diagram
(5 marks)

- Q23** (a) Give **THREE (3)** characteristics of data that are represented in an E-R diagram? (3 marks)
- (b) Explain why a ternary relationship different from a three binary relationships. (2 marks)
- c) Draw an E-R diagram to represent the sample customer order below.

PVF CUSTOMER ORDER

ORDER NO: 61384 CUSTOMER NO.: 1273

NAME : Contemporary Designs
 ADDRESS : 123 Oak St.
 CITY-STATE-ZIP : Austin, TX 28384

ORDER DATE : 01/10/2010 PROMISED DATE : 01/10/2010

PRODUCT NO.	DESCRIPTION	QUANTITY ORDERED	UNIT PRICE
M128	Bookcase	4	200.00
B381	Cabinet	2	150.00
R210	Table	1	500.00

(10 marks)

- Q24** (a) Describe four types of data errors. (6 marks)
- (b) Describe the prototyping process of designing forms and reports (4 marks)

- (c) Based on **Figure Q24(c)**, identify **FIVE (5)** flaws in the interface design and give your suggestion to correct each flaws.

STUDENT ID	AT 020065	
STUDENT NAME	HASIMAHWATI	
STUDENT PASSWORD	hasim123	
<input type="button" value="ADD"/>	<input type="button" value="DELETE"/>	<input type="button" value="MODIFY"/>
STUDENT ID	AT 020022	
STUDENT NAME	AZIAH	
STUDENT PASSWORD	aziati	
<input type="button" value="ADD"/>	<input type="button" value="DELETE"/>	<input type="button" value="MODIFY"/>
STUDENT ID	AT 020074	
STUDENT NAME	HASSAN	
STUDENT PASSWORD	pokemon	
<input type="button" value="ADD"/>	<input type="button" value="DELETE"/>	<input type="button" value="MODIFY"/>

Figure Q24(c)

(5 marks)

- Q25** Answer the following questions based on the following scenario:

Pusat Ko-Kurikulum UTHM wants to install a system to record student's application on sports items. Usually, the applicants are regularly borrower. When the student's matrix number is typed into a computer, the student's name and all their particular is automatically brought up on the screen. Once the sport item is (items are) input into the system, a report is given to the student with the due date on it. Weekly report will be produced to compare the actual quantity of sports items with quantity on stock and quantity in borrowing status.

- (a) Draw a DFD Context Diagram.

(5 marks)

- (b) Draw a DFD Level 0 Diagram

(10 marks)