12.6 SECOND SEMESTER: ASSIGNMENT 03

Due date:	6 April 2018
Study material:	Prescribed book chapters 5, 8, 9, 11 and 12
Excluded:	Objected-oriented analysis and design sections
Assignment type:	Written
Submission procedure:	Via myUnisa in pdf format (see Section 8.5)
Year-mark weight:	60%

Unique assignment number: 649621

Compulsory: It contributes towards the year mark.

- Submit your assignment via *myUnisa* by the due date. Do not be concerned if *myUnisa* is down on the last submission date. We are notified when this happens, and will take this type of delay into consideration.
- Provide detailed solutions to all the questions. The solutions for the questions will be sent to you in Tutorial Letter 202 and will also be available on *myUnisa*.
- The mark that you achieve will contribute 60% towards your semester mark.

SECOND SEMESTER ASSIGNMENT 03 2018, Total: 100 marks

Chapter 5 – Data and process modelling

Question 1 **[28]**

NB: *When drawing data flow diagrams (DFDs), use the Gane and Sarson symbols/notation*.

Read pages 143 to 160 of the prescribed text book. Then answer the questions 1.1 to 1.5 that follow here below:

1.1 Name the four main symbols used to draw data flow diagrams (DFDs). (4)

1.2 Draw *Diagram 1 DFD* that shows the details of the FILL ORDER process in the ORDER SYSTEM (of Figure 5-13 on page 155) found on page 156 in Figure 5-14 of your prescribed book. NB: Only draw figure 5-14. (4)

1.3 Define each of the symbols you named in 1.1 and give any two names of examples of each using the diagram you drew in 1.2. Use a table, such as the one below to present your answer. (8)

Symbol name	Definition	Examples

1.4 Describe, in some details, what *Levelling* is in terms drawing DFDs. Then use Figures 5-13 and 5-14 on pages 155 and 156 respectively, to give an example of how this technique can be done. Do not draw the two figures. (5)

1.5 Describe in some details what *Balancing* is in terms drawing DFDs. Then use Figures 5-13 and 5-14 on pages 155 and 156 respectively, to give an example of how this technique can be done. Do not draw the two figures. It is intentional that you do not use Figures 5-15 or 5-16 to answer this question though the textbook uses these to explain the concept. (3)

1.6 Briefly describe the following with respect to DFDs:

1.6.1 Structured English (2)

1.6.2 Decision tree (2)

NB: *Questions 1.7 & 1.8 below are self-assessment exercises. Attempt the questions but DO NOT submit answers for marking. Solutions to these questions will appear together with the solutions to this assignment.*

1.7 Draw a diagram of an example of each of the following showing the process, and the input(s) and output (s), where applicable. You should name each process, input or output used. Do not use the examples from the prescribed test book rather use them as guidelines.

1.7.1 Spontaneous generation (--)

1.7.2 Black hole (--)

1.7.3 Gray hole (--)

1.8 What are the six guidelines for drawing DFDs? (--)

Chapter 8 – User Interface design

Question 2 **[22]**

2.1 The goal of system design is to build systems that are effective, reliable and maintainable. Briefly explain each of these three factors. (6)

2.2 What is Human-Computer Interaction (HCI)? (2)

2.3 What are the seven habits of successful interface designers? (4)

2.4 Use the internet to find the *ISO 9241-11* standard definition of *usability* with respect to computer interfaces. (1)

2.5 Why is prototyping important for users during system design? (1)

2.6 When designing a user interface you should follow eight basic guidelines suggested by the textbook authors. List these guidelines? (8)

NB: *Questions 2.7 below is a self-assessment exercise. Attempt the question but DO NOT submit answers for marking. The solution to this question will appear together with the solution for this assignment.* (--)

(NB: Please study these in detail.)

2.7 The most used forms of output technology for business systems is still in form of screen displays and printed matter. List other current other output types and technologies currently available. (--)

(NB: Please study these in detail.)

Food for thought: How would you describe the input and output technology of ***Pokemon Go****? (Optional and not examinable).*

Chapter 9 – Data design

Question 3 **[16]**

Scenario: In any of the finals of the African Cup of Nations soccer tournament, there are a number of countries involved. Each country has a number of players that compete in the tournament. The Federation of International Football Association (FIFA) rules stipulate that a person can only play for one country. Each player has a number of specialists, such as a doctor, financial adviser, etc. to cater for his different needs. A speciality may provide his or her service to one or more players.

3.1 Draw an entity relationship diagram (ERD) for this scenario. The ERD should not contain any many-to-many relationships. Do not include entities that are not in the scope (scenario) provided above. No attributes/fields are required in this section. (8)

3.2 Create a relational database schema from the ERD in 3.1 showing all tables in 3NF. Each table should include at least three fields. Appropriate primary keys should be used. Primary keys must be underlined and each foreign key should have the letters FK in brackets after it, for instance xyz (FK). There is no need to show all the steps involved in this process since only the final relational schema will be marked. (8)

NB: A *schema* is simply a list of each table name and its fields/attributes in a database as in the example below.

Product (Product-Code, Product-name, …)

Customer (Customer-ID, Customer-name,…)

etc …

Chapter 11 – Managing Systems Implementation

Question 4 **[10]**

Draw Figure 11-10 found on page 368 of your prescribed book then explain how the main and sub-modules of this structured chart work together, i.e. what each module/sub-module does and how data is interchanged. Note that you are NOT asked to explain this modules in terms of a *control couple* as used in the text book. What is needed is general explanation of how structured charts modules and sub-modules work together and how data is exchanged, using this diagram. (10)

Question 5 **[10]**

For sections 5.1 and 5.2, briefly describe each with respect to managing systems implementation.

5.1 System testing (2)

5.2 Operational documentation (2)

Explain in, some details, each of the following. You may use the internet for more detailed information. Then, show how each can be used to train users of a software package purchased from a vendor.

5.3 Webinar (3)

5.4 Tutorial (3)

Chapter 12 – Systems Support and Security

Question 6 **[14]**

Briefly describe each of the following with respect to managing system support and security.

6.1 Perfective maintenance (2)

6.2 Configuration management (2)

6.3 Fault management (2)

6.4 Incremental backup (2)

6.5 The three interactive tasks of risk management (briefly describe each) (6)

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