Class Test 2 CMPG223 2022 MEMO

System Analysis and Design (North-West University)

Benodigdhede vir hierdie vraestel/Requirements for this paper:

Multikeusekaarte/ Multi-choice cards:	**Nie-programmeerbare sakrekenaar/ Non-programmable calculator:**	
Grafiekpapier/ Graph paper:	**Draagbare Rekenaar/ Laptop:**	

Oopboek-eksamen/ Open book examination?	**NEE/ NO**

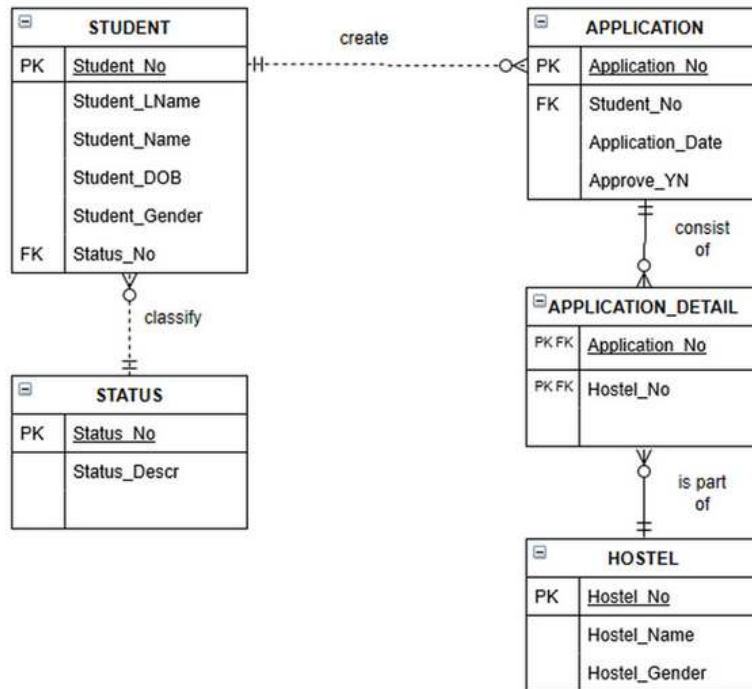|			
EKSAMEN/TOETS EXAMINATION/TEST:	Class Test 2	**KWALIFIKASIE/ QUALIFICATION:**	B.Com, B.Sc, B.Sc in IT
MODULEKODE/ MODULE CODE:	CMPG 223	**TYDSDUUR/ DURATION:**	1 Hour : 30 Minutes
MODULEBESKRYWING/ MODULE DESCRIPTION:	SYSTEMS ANALYSIS AND DESIGN II	**MAKS/ MAX:**	
EKSAMINATOR(E)/ EXAMINER(S):	M.O SERAKE	**DATUM/ DATE:**	15 September 2022
		TYD/TIME:	07:30 am

INSTRUCTIONS

1. Answer all questions in the script provided.
2. Write neatly and legibly
3. Read the scenario below and answer all the questions:

General scenario

A private higher education institution has grown over the past few years to an extent that they now have multiple campuses across South Africa. The institution offers various degrees, certificates, and short courses to students. Although these courses can be done in a distance-learning mode, many students prefer to have contact classes. Most students doing qualifications in contact mode stay in hostels provided by the institution. Due to the recent growth in the number of students, the institution needs several IT solutions to improve its efficiency.

QUESTION 1 [Chapter 14]

Consider the logical data model of a section of a database that has to be created in SQL Server, below

1.1. Complete the table below. Indicate the datatypes you will use for the fields listed when creating the physical data model for this section of the database. (4)

TABLE	FIELD	DATATYPE
STUDENT	Student_DOB	A.
STUDENT	Student_Gender	B.
STUDENT	Student_Name	C.
APPLICATION	Application_No	D.
APPLICATION	Student_No	E.
APPLICATION	Approve_YN	F.
APPLICATION_DETAIL	Hostel_No	G.
STATUS	Status_Descr	H.

1.2. Complete the table below to ensure the following referential integrity (4)

- APPLICATION records can always be deleted. When an APPLICATION parent record is deleted, all children's records for the specific application must also be deleted immediately.

- The deletion of HOSTEL, STATUS, and STUDENT parent records for which children records exist, must be restricted.

- STUDENT records for which no children records exist can be deleted.

- APPLICATION_DETAIL records can always be deleted.

RELATIONSHIP	REFERENTIAL INTEGRITY FOR PARENT ENTITY	REFERENTIAL INTEGRITY FOR CHILD ENTITY
STATUS classify STUDENT	A.	B.
STUDENT create APPLICATION	C.	D.
APPLICATION consist of APPLICATION_DETAIL	E.	F.
HOSTEL is part of APPLICATION_DETAIL	G.	H.

1.3. Write an SQL statement to create the table Hostel (5)

CREATE TABLE Hostel (

  Hostel_No INTEGER PRIMARY KEY,

  Hostel_Name TEXT NOT NULL,

  Hostel_Gender TEXT NOT NULL

  );

1.4. Write an SQL statement to insert the following information into the table Hostel (2)

- **Hostel_No** : 13

- **Hostel_Name** : Marilyn

- **Hostel_Gender** : Mixed

INSERT INTO Hostel VALUES (13, 'Marilyn', 'Mixed');

1.5. Write an SQL statement to update the details of the Hostel_Gender in question 4. Change the Hostel_Gender to "Male". (3)

update Hostel

set Hostel_Gender = "Male"

where Hostel_No = 13;

[18]

Question 2 [Chapter 15]

2.1. System users require a report containing a summary of the number of applications per gender per week. It must be possible to request the report per period (from a start date to end date). The report should show the total number of applications per gender as well as the total number of applications for the period. The report must be sorted in descending order of the total number of applications (to show the most represented genders first). Consider guidelines for output design and draw the layout for the report. (11)

yyyy/mm/dd										Page: 1
			Number of Applications per Gender per Week from yyyy/mm/dd to yyyy/mm/dd							
					ordered by gender with most applications					
	Gender	Week Start Date 99/99/99	Week Start Date 99/99/99	Week Start Date 99/99/99	Week Start Date 99/99/99	Week Start Date 99/99/99	Week Start Date 99/99/99	Week Start Date 99/99/99	TOTAL	
	X	99	99	99	99	99	99	99	999	
	X	99	99	99	99	99	99	99	999	
	X	99	99	99	99	99	99	99	999	
	X	99	99	99	99	99	99	99	999	
	X	99	99	99	99	99	99	99	999	
								GRAND TOTAL	99999	
	Page 1 of 1									

2.2. Give TWO types of charts that can be used to present this information. Motivate your answers and be specific to the scenario (2)

[13]

Chapter 3 [Chapter 16]

3. Good input and output design can make the difference in whether or not an information system is used effectively. Draw an input form to encapsulate the data structure presented in the scenario below. Apply the appropriate concepts and guidelines of input design and prototyping.

   Student can apply for one or more hostels at the institution, up to a maximum of three hostels per application. The following data structure represents the information needed to apply for a hostel:

   > Student Number+
   > Date of Application +
   > Hostel Name 1 +
   > Hostel Name 2 +
   > Hostel Name 3 +

4. Study the following data input screen used by students at a university to order books online from a bookstore. Is there anything wrong with the design of this input screen? Motivate your answer. (8)

Enter Student # :   Enter Student First Name :

Enter ISBN # :   Enter Book Name

Answer:

Yes. (1)

To reduce input time and to reduce errors, a general principle of system design is that system users and customers should not have to enter constant or redundant data, i.e., only variable data should be captured through data entry. (1)

The Student # and ISBN # should be the only data items they need to enter.(1)

The student first name can be obtained from a look-up table and auto filled on the data entry for verification (1) same as book name

Technical isues include:

- No add button (1)

- No tittle(1)

- No indication as to type of screen(1)

- User's may not know the meaning of "#"(1)

(8)

Question 4 [Chapter 17]

5. Evaluate whether the following messages comply with the guidelines for tone and terminology of dialogue (Yes/No). Motivate each of your answers. (6)

      I.   An information message: Great! You may at last proceed to the next step!

           No + Reason

      II.   An error message: Please re-enter the customer record.

           No + Reason

      III.   An error message: Please ensure to complete all fields.

           Yes + Reason

TOTAL MARKS : 45