

# UGANDA MARTYRS UNIVERSITY

## NKOZI

### UNIVERSITY EXAMINATION

June 2021

### FACULTY OF SCIENCE

## DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION SYSTEMS

SECOND YEAR, END OF SEMESTER TWO FINAL ASSESSMENT

FOR

BACHELORS OF SCIENCE IN INFORMATION TECHNOLOGY

BACHELORS OF SCIENCE IN COMPUTER SCIENCE

BACHELORS OF SCIENCE IN EDUCATION

### DATABASE PROGRAMMING

Presentation date: Tuesday, 13/07/2021 starting at 8:00am

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**Instructions:**

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Instructions

- ◆ This is a Take-Home exam
  - ◆ ALL questions are compulsory
  - ◆ The written/theory part (I and ii) is to be **uploaded on the moodle system under the Examination section** on your course page of database programming. Ensure that your file is in pdf format.
  - ◆ The practical part is to be done using oracle express edition and presented by the candidate online on **Tuesday 13/07/2021** starting at 8:00am. A presentation schedule and Link will be shared on the moodle course page. Please respect the time slot assigned to you on the presentation schedule.
  - ◆ Any form of sharing of work will be panelized
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### Question:

**Renewed Health hospital** is a multi specialty hospital that has a number of departments, wards, rooms, doctors, nurses, casual workers and other staff working in the hospital. Patients with different

kinds of ailments visit to the hospital to get checked up by concerned doctors. Some get admitted in respective wards/rooms depending on their ailment and are discharged after treatment.

This hospital maintains records of the regular patients (out patients), patients admitted in the hospital (in patients), the check up of patients done by the doctors, the patients that have been operated, and patients discharged from the hospital. There are various departments like Orthopedic, Pathology, Emergency, Dental, Gynecology, Anesthetics, I.C.U., Blood Bank, Operation Theater, Laboratory, M.R.I., Neurology, Cardiology, Accounts, Procurement, Cancer Department etc. Patients are required to fill an OPD card (that is an entry/registration card for the patient) for check up from the concerned doctor. After making entry in the card, they go to the concerned doctor's room and the doctor checks up their ailments. According to the ailments, the doctor either prescribes medicine or admits the patient in the concerned department. The patient may choose either private or general room according to his/her need. But before getting admission in the hospital, the patient has to fulfill certain requirements of the hospital like room charges, etc. After the treatment is completed, the doctor discharges the patient. Before discharging from the hospital, the patient again has to complete certain formalities of the hospital like balance charges, test charges, operation charges (if any), blood charges, doctors' charges, etc.

There are two types of the doctors in the hospital. Namely, regular doctors and on-call doctors. Regular doctors are those doctors who come to the hospital daily. On-call doctors are those doctors who are called by the hospital if the concerned doctor is not available.

The hospital accepts payment by credit card, cash and direct bank payment for patients who are insured. The hospital employs casual workers to tend the compound, clean the rooms and help around the hospital with different tasks like moving items from one location to another. Stocking and management of hospital equipment is done by the procurement department, whenever the need arises as long as the accounts department releases funds.

- i. Base on the case above to design the database using an Entity relationship diagram. Make it as detailed as possible including numeric multiplicity. Use Crow foot notation. **(20 marks)**
- ii. Detail a risk management plan that can be adapted to manage risks that may arise during the development and use of this database system. **(10 marks)**

- iii. Using the oracle dbms, , develop an application ( oracle forms) for this hospital to enable the day to day operations and safe storage of the information. The application should have a reflection of the model drawn in (i).

Make the oracle entry forms as user friendly as possible. Your creativity and logical thinking will be of great advantage. **( 70 marks)**

Your application should show evidence of at least 80% of the following aspects;

- a. different aspects of data retrieval , ddl and dml.
- b. Implementation of the different data constraints
- c. Applicability of Joins ( Natural, left, right and full)
- d. Enforcement of data independence Data security
- e. User views
- f. Indexing
- g. Implementation of database user account management and Roles
- h. Validation
- i. Generation of Reports
- j. End user convenience
- k. Granting and revoking object privileges.
- l. Ensure that information is accessed by authentic users and actions performed are privileged....

End