OFFICE OF THE DEPUTY PRINCIPAL
ACADEMICS, STUDENT AFFAIRS AND RESEARCH

UNIVERSITY EXAMINATIONS

2019/2020 ACADEMIC YEAR

THIRD YEAR SECOND SEMESTER EXAMINATION

MAIN EXAMINATION

FOR THE DEGREE OF BACHELOR OF COMPUTER SCIENCE

COURSE CODE: COM 318 E

COURSE TITLE: DATABASE SYSTEMS

DATE: 3RD NOVEMBER, 2020   **TIME: 2.00 PM – 5.00 PM**

INSTRUCTION TO CANDIDATES

- **SEE INSIDE**

THIS PAPER CONSISTS OF PRINTED PAGES   PLEASE TURN OVER

STREAM: BSc (Computer Science)   **DURATION: 3 Hours**

INSTRUCTIONS TO CANDIDATES

   i.   *Answer **ALL** questions from section A and any **THREE** from section B.*

   ii.   *Maps and diagrams should be used whenever they serve to illustrate the answer.*

   iii.   *Do not write on the question paper.*

SECTION A (24 MARKS) COMPULSORY

QUESTION ONE [12 MARKS]

a.   Explain the following

     i.   Record

     ii.   Field

     iii.   DBMS

     iv.   Entity   **[4 marks]**

b.   Database systems are accessed by several users. Explain four database systems users

                                                  [8 Marks]

QUESTION TWO [12 MARKS]

a.   Explain the following as used in databases   **[2 Marks]**

     i.   Database Schema

     ii.   Database Instance

b.   Differentiate between physical and logical data independence?   **[4 Marks]**

c.   List and explain the three levels of the ANSI-SPARC architecture   **[6 Marks]**

SECTION B [36 MARKS]

QUESTION THREE [12 MARKS]

a. List and explain any three functions of a DBMS   [6 Marks]

b. Discuss three main limitations of a file based system   [6 Marks]

QUESTION FOUR [12 MARKS]

a. Explain the following: [4 Marks]

    i.   Database modeling

    ii.   Database design

b. Explain any three database languages   [6 Marks]

c. Explain what a file based system is   [2 Marks]

QUESTION FIVE [12 MARKS]

a. Give six advantages of using database systems in organizations [6 Marks]

b. Explain three operators in Relational Algebra   [6 marks]

QUESTION SIX [12 MARKS]

a. Explain the duties of a DBA.   [6 Marks]

b. In your own perspective, explain any three reasons as to why DBMS are preferred over file

based systems in institutions of higher learning.   [6 Marks]

QUESTION SEVEN [12 MARKS]

a. Define the following:

    i) RDD

    ii) Hashing   [4 Marks]

b. Data Dictionary is very critical component of DBMS because it stores meta-data i.e. detailed

information on data in a database. Give four benefits of a Data Dictionary   [4 Marks]

c. Explain four basic SQL statements   [4 Marks]

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