NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91 CADASTRAL ZONE, NNAMDI AZIKWE EXPRESSWAY, JABI, ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF COMPUTER SCIENCE
2020_1 EXAMINATION

COURSE CODE: CIT427
COURSE CREDIT: 3
COURSE TITLE: DATABASE SYTEMS AND MANAGEMENT
ALLOWED: $2^1/_2$ HOURS
INSTRUCTION: ANSWER QUESTION ONE (1) AND ANY OTHER (4) QUESTIONS

1a.   i.) Define and with suitable examples explain the components of E-R model   5½ marks
       ii.) Name and draw symbols of the major symbols used in E-R diagrams, and state what each symbol represent   4marks

b.   i.) Using appropriate the symbols and attributes, draw the E-R diagram of the following entity sets: Customer and Account   4marks

ii.   Outline the features and operation of the Object-Oriented Model   4marks

c.   Briefly State the features of the following models: Relational, Network, and Hierarchical.   4½ marks

2a.   Explain the following concepts: Instance and Schema   3marks
b.   Explain the classes of Data Independence   4marks
c.   outline the various Categories of Database Users stating the function of each   5marks

3a.   Explain the role of various components of DBMS Data Structure   4marks
b.   Differentiate between the following terms: Entity, Entity-types, Entity-Representations   3marks
C.   Define Mapping Cardinalities and explain the possible cardinality types in a binary relationship given two entity sets A and B   5marks

4a.   What are decisions or choices to be made in designing a good database scheme?   4marks
b.   Briefly explain the following relational algebra operations: Select, Project, Cartesian product and Union   8marks

5a.   What are the roles of the following SQL parts: Data definition language, Data Manipulation language and Data Control language?   3marks
b.)   Explain the following DML operations/command: Delete, Insert and Update   3marks
c.   i)   Explain the purpose of the following Integrity constraints: Domain/Key Normal Form and Referential Integrity   3marks
      ii)   Given two relations R1 and R2, explain what happens when referential Integrity constraint rule is violated   3marks

6a.   Distinguish between the following storage terminologies: Dynamic Random Access Memory, Static Memory and Memory Storage Density and File Organisation   8marks
b.   What are the key considerations in specifying a system of file organisation?   4marks