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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2022/2023**

COURSE NAME : DATABASE

COURSE CODE : DAT 20103

PROGRAMME CODE : DAT

EXAMINATION DATE : FEBRUARY 2023

DURATION : 2 HOURS 30 MINUTES

INSTRUCTIONS :

1. ANSWER ALL QUESTIONS
2. THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.
3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **SEVEN (7)** PAGES

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**SECTION A (10 MARKS)**

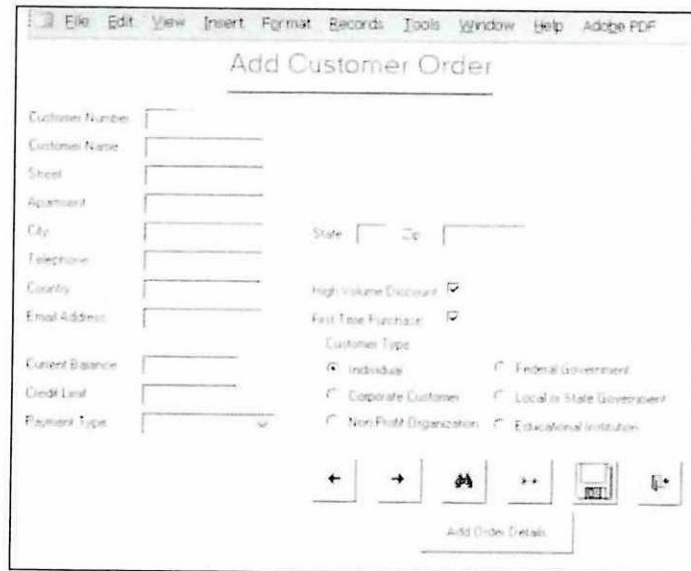
**Q1** “Processed data is a good structure, enabling decisions to be made”.  
The above explanation refers to \_\_\_\_\_.

A Attribute  
B Entity  
C Information  
D Data

**Q2** Which of the following is **NOT** the weakness of the filing system?

A Duplication of data  
B Data separation  
C File incompatibility  
D Control over excess data

**Q3** **Figure Q3** shows the example of which level in the database architecture?



**Figure Q3**

- A External  
B Conceptual  
C Internal  
D Scheme

**Q4** “It consists of a computer with a single processing unit and several terminals”.  
Which of the following refers to the above multi-user Database Management System (DBMS)?

- A Client-server  
B Teleprocessing  
C File processing  
D Telecommunication

- Q5 Which of the following is **NOT** the purpose of planning?  
 A Define problems and constraints.  
 B Analyze the current situation of an organization.  
 C Provide a data model to support all required transactions.  
 D Feasibility research.
- Q6 \_\_\_\_\_ is **NOT** a type of database.  
 A Cloud  
 B Hierarchical  
 C Commercial  
 D Decentralized
- Q7 \_\_\_\_\_ command is used to remove a relation in Structured Query Language (SQL).  
 A Drop  
 B Delete  
 C Truncate  
 D Remove
- Q8 Which of the following statements is **FALSE** based on **Figure Q8**?

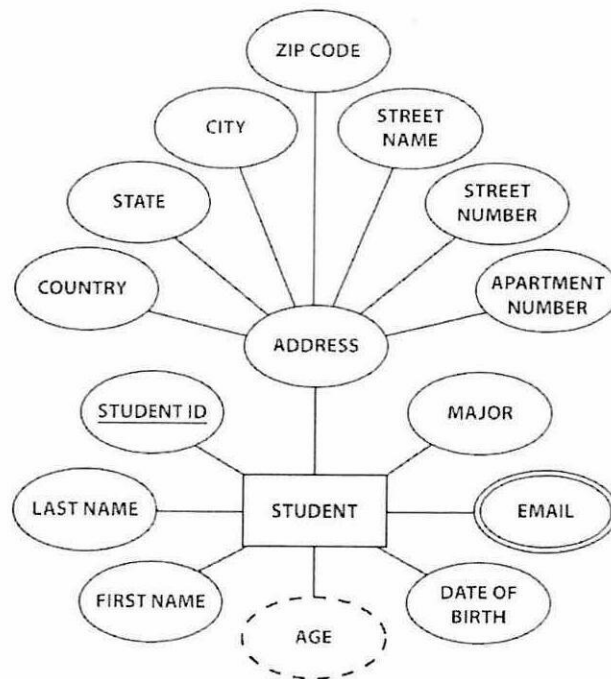
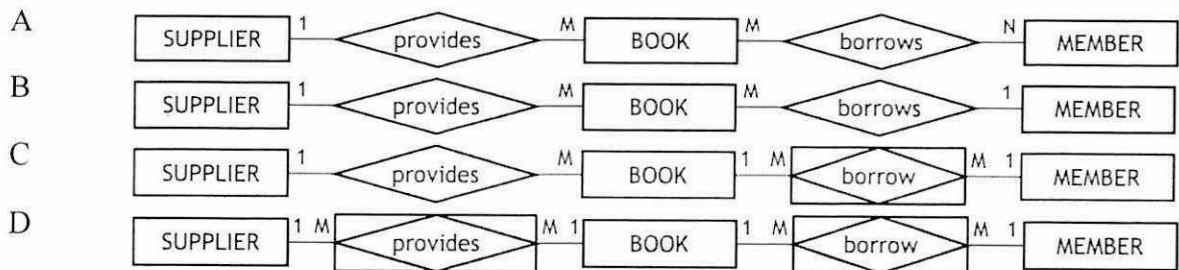


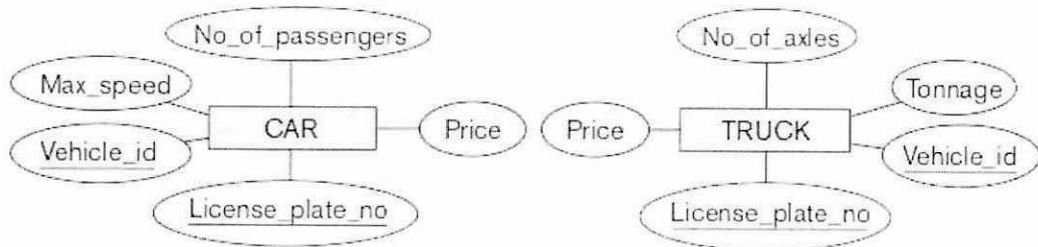
Figure Q8

- A There are 15 simple attributes.  
 B Each student is uniquely identified by their STUDENT ID.  
 C A student can have multiple email addresses.  
 D The AGE attribute is derived from the DATE OF BIRTH attribute.

**Q9** “A supplier provides the library with many books, and one supplier can only provide each book. A member can borrow many books, and each book can be borrowed by a member”. Which entity relationship diagram (ERD) best represents the statements above?



**Q10** Choose the **BEST** action that should be carried out based on **Figure Q10**.



**Figure Q10**

- A Place all attributes from CAR and TRUCK into a VEHICLE entity.
- B Place attributes from CAR and TRUCK into a VEHICLE entity, but eliminate distinguishing attributes.
- C Move common attributes from CAR and TRUCK into a VEHICLE entity, and keep distinguishing attributes in their respective entities.
- D Copy common attributes from CAR and TRUCK into a VEHICLE entity, and keep all attributes in their respective entities.



**SECTION B (90 MARKS)**

**Q11** The following are the attributes and the sub-attributes of an EMPLOYEE entity.

*Attribute: EmployeeID, Name, DateofBirth, Age, Address, Skill, Passport, TelephoneNo*

*Sub-Attribute1: HouseNo, RoadName, Town, Postcode, State*

*Sub-Attribute2: FirstName, MiddleName, LastName*

Identify the:

- (a) derived attribute(s) (1 mark)
- (b) multi-value attribute(s) (2 marks)
- (c) composite attribute(s) (2 marks)
- (d) solitary value attribute(s) (1 mark)

**Q12** Sketch a reference representation integrity table based on the following relational schemas.

CUSTOMER (CustomerNo, CustomerName, Address)

ORDER (OrderNo, OrderDate, CustomerNo)

ORDERED\_PRODUCT (OrderNo, ProductCode, Quantity)

PRODUCT (ProductCode, Description, Price, CurrentBill)

(20 marks)

**Q13** Convert **Table Q13** from Unnormalized Form (UNF) to First Normalization Form (1NF).

**Table Q13**

STAFF

DeptCode	DeptName	StaffID	StaffName	StaffSalary
IS	Information System	PK 67	Shamsul Mohamad	10000
		PK89	Syamseer Irfan	5000
HR	Human Resources	PK56	Rafizah Mohd Hanifa	9000
		PK 11	Syahmina Amani	4500
		PK34	Syahmie Iqbal	3900
ENG	Engineering	PK98	Mohamad Jamri	8300
		PK45	Chong Sek Choo	6500

(7 marks)

- Q14** (a) Write an SQL based on **Table Q14** for the following questions.
- (i) Add the following record into STUDENT's table:  
A1005, Aiman Hanif, Science Information  
(4 marks)
  - (ii) Give a 3% salary increment to all staff holding the post of Lecturer.  
(7 marks)
  - (iii) Show the result of **Q14(a)(ii)**.  
(2 marks)
  - (iv) Display the list of lecturers that teach the Database course with their staff number.  
(13 marks)
  - (v) Show the result of **Q14(a)(iv)**.  
(3 marks)
- (b) Draw a reference representation integrity table.  
(9 marks)
- Q15** Identify the **FOUR** stages during the Hypertext Transfer Protocol (HTTP) transaction.  
(4 marks)
- Q16** United Parcel Service (UPS) prides itself on having up-to-date information on the processing and current location of each shipped item. To do this, UPS relies on a company-wide information system. Shipped items are the heart of the UPS product tracking information system. Shipped items can be characterized by item number (unique), weight, dimensions, insurance amount, destination, and final delivery date. Shipped items are received into the UPS system at a single retail centre. Retail centres are characterized by their type, unique ID, and address. Shipped items arrive at their destination via one or more standard UPS transportation events (i.e., flights, truck deliveries). These transportation events are characterized by a unique schedule number, a type (e.g. flight, truck), and a delivery route.
- Illustrate an Entity Relationship diagram that captures the information about the UPS system. Be certain to indicate identifiers and cardinality constraints.  
(15 marks)

-END OF QUESTIONS -

## FINAL EXAMINATION

SEMESTER / SESSION: SEM I 2022/2023  
 COURSE NAME: DATABASE

PROGRAMME CODE: DAT  
 COURSE CODE: DAT20103

Table Q14

## STUDENT

MatricNo	StudentName	Major
A1000	Danial Fakhri	Computer Science
A1001	Adlina Fareesya	Multimedia
A1002	Ganesh Raj	Information Science
A1003	Shukri Aman	Network Security
A1004	Jevnita	Multimedia

## COURSE

CourseNo	CourseName	StaffNo
SK100	Java Programming	P1000
MM100	Graphic Design	P1000
SM100	Discrete Mathematics	P3000
RK200	Database	P3500
MM200	Visual Programming	P3000

## REGISTRATION

MatricNo	CourseNo	Grade	Value
A1000	RK200	B	3.00
A1000	SK100	C+	2.33
A1001	MM200	B-	2.67
A1001	SK100	A	4.00
A1002	SM100	A-	3.67
A1004	MM200	B	3.00
A1004	RK200	C	2.00

## STAFF

StaffNo	StaffName	Salary	Position
P1000	Rahman Al-Afif	4000	Senior Lecturer
S1500	Farisha Izzati	1500	Tutor
S2000	Nukman Hafiz	2500	Tutor
P2500	Fawwaz Widad	3000	Lecturer
P3000	Noralysya Akmal	3500	Senior Lecturer
P3500	Sarveshwar	3300	Lecturer
S3000	Nurin Nazlah	2700	Tutor