UNIVERSITI MALAYSIA PERLIS

Peperiksaan Pertengahan Semester
Sidang Akademik 2019/2020

January 2020

DKT223 – Database System
[Sistem Pangkalan Data]

Masa : 2 jam

Please make sure that this question paper has **FOUR (4)** printed pages including this front page before you start the examination.
[Sila pastikan kertas soalan ini mengandungi EMPAT (4) muka surat yang bercetak termasuk muka hadapan sebelum anda memulakan peperiksaan ini.]

This question paper has **FOUR (4)** questions. Answer **ALL** questions.
[Kertas soalan ini mengandungi EMPAT (4) soalan. Jawab SEMUA soalan.]

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1. 9
2. 10
3. 11
4. 14½

44½

SULIT

Question 1

One way to keep information on a computer is to store it in permanent files. This file based system has been used by many organizations over the last few decades. It was developed as better alternatives to paper based filing systems.

    a. Explain the usage of file based system as compared to paper based filing system.

(4 Marks)

    b. However, file based systems also suffers from many limitations. Discuss **TWO** **(2)** limitations of file based systems.

(5 Marks)

Question 2

The difficulties that arise from using the file based system have prompted the development of a new approach in managing large amounts of organizational information called the database approach.

    a. Database Management System (DBMS) is great way to manage data. It is the results of decades of research and development. You are required to create a database for ABC Clinic. Discuss the purpose of ABC Clinic database to the clinic's owner. You also need to propose a suitable DBMS.

(6 Marks)

    b. Based on answer in (a) discuss **TWO (2)** benefits of database as compared to the file-based system to the owner of ABC Clinic.

(4 Marks)

Question 3

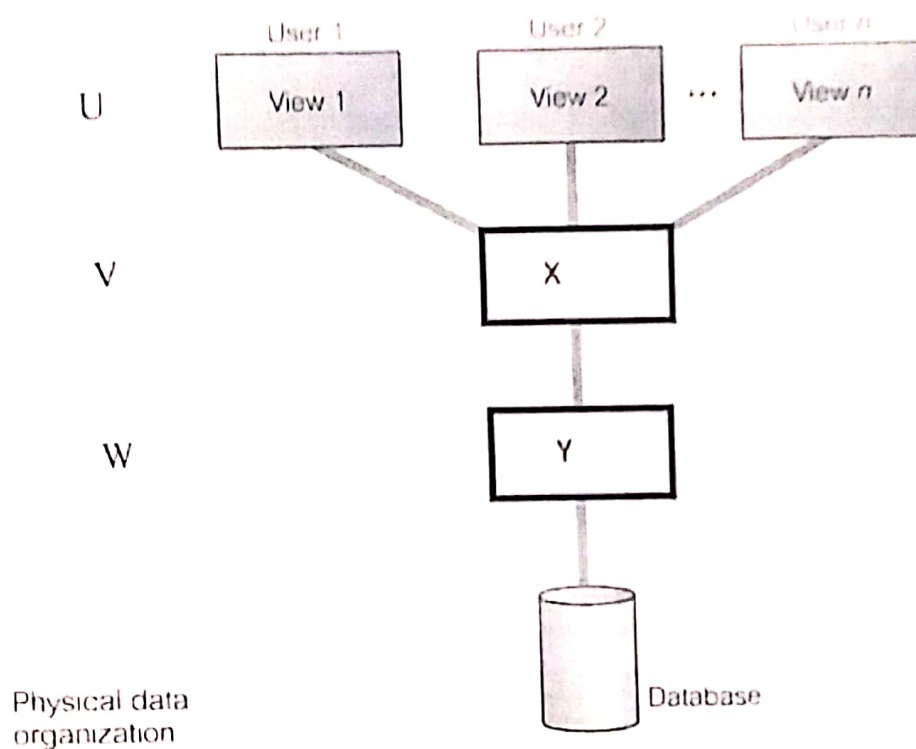Figure 1 shows a three level architecture of a database.

Figure 1 : ANSI-SPARC Three-level Architecture

a. Complete the ANSI-SPARC Three-level Architecture. Label U, V, W, X and Y.

(5 Marks)

b. The architecture of most of commercial DBMS available today is mostly based on this ANSI-SPARC database architecture. Differentiate the importance of each level in the Three-level architecture.

(6 Marks)

Question 4

You have been hired to design a relational DBMS for the Luxury Real Estate Inc. which lists property for sale. Your task is to prepare an ERD for the real estate firm. The relevant information is given below.

The firm has a number of sales offices in several states. Each sales office has an office number and location. Each sales office has one or more employees. An employee has an employee ID and name. Each employee must be assigned to only one sales office. For each sales office, there is always one manager assigned to manage the office. A manager manages only the sales office to which he/she is assigned. The firm lists property for sale. The property consists of property ID and location. Component of location include address, city, state, and zip code. Each unit of property must be listed with one (and only one) of the sales offices. A sales office may have any number of properties listed, or may have no properties listed. Each unit of property has one or more owners. Attributes of owners are Owner ID and owner name. An owner may own one or more units of property. An attribute of the relationship between owner and property is Percent owned. Each property is handled by an employee. Meanwhile, an employee may handle a maximum of five properties.

a. Based on the case study above, identify the entities and its respective attributes.

(8 Marks)

b. Identify the primary key for each entity.

(2 Marks)

c. Draw a complete ERD based on the case study above. You must include relevant cardinality or connectivity.

(10 Marks)
~~(12 Marks)~~

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