

**SECTION A : 80 MARKS*****BAHAGIAN A : 80 MARKAH*****INSTRUCTION:**

This section consists of **FOUR (4)** structured questions. Answer **ALL** the questions.

***ARAHAN:***

*Bahagian ini mengandungi EMPAT (4) soalan berstruktur. Jawab SEMUA soalan.*

**QUESTION 1*****SOALAN 1***

- CLO1  
C1 (a) List **FOUR (4)** general types of database.  
*Senaraikan EMPAT (4) jenis pangkalan data umum.*  
[4 marks]  
[4 markah]
- CLO1  
C2 (b) Compare **FOUR (4)** differences between Database System and File Based System.  
*Bandingkan EMPAT (4) perbezaan di antara Sistem Pangkalan Data dan Sistem Berasaskan Fail.*  
[8 marks]  
[8 markah]
- CLO1  
C2 (c) Explain the following attribute with an appropriate example.  
*Jelaskan atribut berikut dengan contoh yang sesuai.*  
  
i. Model schema  
*Skema model.*  
  
ii. Model instance  
*Kejadian model*  
[8 marks]  
[8 markah]

## QUESTION 2

## SOALAN 2

**Statement 1**

A company has several departments. Each department has a supervisor and at least one employee. Employees must be assigned to at least one department. Project will be given to the employee and it will be done in a group. At least one employee is assigned to one project or more. The important data fields are the names of the departments, projects, supervisors and employees, as well as the supervisor and employee number, department number and a unique project number.

**Penyataan 1**

*Sebuah syarikat mempunyai beberapa jabatan. Setiap jabatan mempunyai penyelia dan sekurang-kurangnya seorang pekerja. Pekerja mesti ditugaskan kepada sekurang-kurangnya satu jabatan. Projek akan diberikan kepada pekerja dan ia akan dilakukan dalam satu kumpulan. Sekurang-kurangnya seorang pekerja ditugaskan untuk satu projek atau lebih. Bidang data yang penting ialah nama jabatan, projek, penyelia dan pekerja, serta penyelia dan nombor pekerja, nombor jabatan dan nombor projek unik.*

Based on the Statement 1:

Berdasarkan Penyataan 1:

CLO1  
C1

- (a) State **FOUR (4)** existing entities.  
*Nyatakan EMPAT (4) entiti yang ada.*

[4 marks]

[4 markah]

CLO1  
C2

- (b) Fill in the attributes of each entity listed in Table A2(b).  
*Isikan semua atribut bagi setiap entiti yang disenaraikan dalam Jadual A2(b).*

Entity	Attribute
Department	
Supervisor	
Employee	

Table A2(b) / Jadual A2(b)

[6 marks]

[6 markah]

- CLO1 (c) Draw the Entity-Relationship (ER) diagram for Statement 1 with their relationship.

C3

*Lukis rajah Entiti-Hubungan untuk Penyataan 1 bersama perhubungannya.*

[10 marks]

[10 markah]

CLO1

**QUESTION 3**

C2

**SOALAN 3**

- (a) Explain **TWO (2)** integrity types in database.

*Terangkan DUA (2) peraturan integriti di dalam pangkalan data.*

[4 marks]

[4 markah]

CLO1

C3

- (b) By referring to the table Table A3(b(i)) and table Table A3(b(ii)), carry out the result using the relational algebra operator below:

*Merujuk Jadual Jadual A3(b(i)) dan Jadual A3(b(ii)) , dapatkan hasil keluaran berdasarkan operasi algebra hubungan di bawah:*

StudentA  $\cup$  StudentB

RegNo	Name	Programme
07DTK15F1001	Insyirah	DTK
07DTK15F2001	Nur Husnina	DTK
07DET15F2001	Ariqah	DET
07DET15F1001	Ullima	DET
07DEP15F2001	Hurriyah	DEP

Table A3(b(i)) / Jadual A3(b(i)): STUDENT

RegNo	Name	Programme
07DTK15F1001	Insyirah	DTK
07DET15F2002	Zawanah	DET
07DET14F1001	Faqiha	DET

Table A3(b(ii)) / Jadual A3(b(ii)): STUDENT

[8 marks]

[8 markah]

CLO1  
C3

(c) Referring to Table A3(c), show the result of relational algebra operator below:  
*Merujuk kepada Jadual A3(c), tunjukkan keluaran berdasarkan operasi algebra hubungan di bawah:*

- i.  $\pi_{\text{MatNo, ICNo}}(\sigma_{\text{CourseCode}=\text{DEC40073} \text{ or } \text{Class}=\text{DTK4A}}(\text{STUDENT}))$
- ii.  $\pi_{\text{StudName, Class}}(\sigma_{\text{CGPA} \geq 2.50 \text{ and } \text{CourseCode}=\text{DEC40073}}(\text{STUDENT}))$

Table A3(c) / *Jadual A3(c)*: STUDENT

MatNo	StudName	ICNo	Class	CGPA	CourseCode
07DTK17F1001	Mardhiyyah	901221-12-0426	DTK4A	3.21	DEC40062
07DTK17F2004	Syauqiah	901009-06-1524	DTK4A	2.50	DEC40062
07DTK17F1002	Taqiyyah	900804-08-4501	DTK4A	2.89	DEC40073
07DTK17F1003	Umar	900625-01-5128	DTK4B	3.88	DEC40073

[8 marks]

[8 markah]

CLO1  
C2

**QUESTION 4(a)****SOALAN 4(a)**

- (a) Explain the definition of project proposal.

*Terangkan definisi bagi cadangan projek.*

[4 marks]

[4 markah]

CLO1  
C3

- (b) Based on Database Life Cycle (DBLC), write the action that should be taken under database initial study.

*Berdasarkan Database Life Cycle (DBLC), tulis tindakan yang perlu di ambil di bawah kajian awal pangkalan data.*

[8 marks]

[8 markah]

CLO1  
C3

- (c) Write all the steps involved during the preparation project documentation.

*Tuliskan semua langkah-langkah yang terlibat semasa penyediaan dokumentasi projek.*

[8 marks]

[8 markah]

**SECTION B : 20 MARKS****BAHAGIAN B : 20 MARKAH****INSTRUCTION:**

This section consists of **ONE (1)** essay question. Answer **ALL** the question.

**ARAHAN:**

*Bahagian ini mengandungi SATU (1) soalan esei. Jawab SEMUA soalan tersebut.*

**QUESTION 1****SOALAN 1**

CLO1  
C4

- (a) Based on the Table B1(a (i)) and Table B1(a (ii)) below, answer the following questions:

*Berdasarkan Jadual B1(a(i)) dan Jadual B1(a(ii)), jawab soalan di bawah:*

Table B1(a (i)) / *Jadual B1(a(i))*: **STUDENT**

RegNo	Name	Sex	BirthofDate	Address	ClassCode
07DTKF1001	Uthman	Male	20 Januari 1994	Tuaran	02
07DTKF2001	Aisyah	Female	22 December 1995	Ranau	01
07DETF2001	Abu Bakar	Male	14 June1995	Tawau	01
07DEEF1041	Ali	Male	25 March1995	Keningau	01
07DEPF2041	Khadijah	Female	23 February 1995	Sandakan	02

Table B1(a (ii)) / *Jadual B1(a(ii))*: **PROGRAMME**

ClassCode	ClassName
01	Mawar
02	Cempaka

Attribute (Field) Name	Data Declaration
RegNo	Varchar (10)
Name	Varchar
Sex	Varchar (6)
Birthofdate	Date
Address	Varchar
ClassCode	Integer (2)

- ( i ) Create the **STUDENT** table by using SQL command. (Note: ClassCode is a Foreign Key for table **STUDENT**).

*Bina jadual **STUDENT** menggunakan arahan SQL. (Makluman: ClassCode adalah kunci asing bagi **STUDENT**).*

[9 marks]

[9 markah]

- ( ii ) Determine the SQL command to insert a new record as shown below in **STUDENT** table.

*Tentukan arahan SQL untuk memasukkan rekod baru seperti di bawah ke dalam Jadual **STUDENT**.*

07DTKF1013, Faiznor, 8 April 1994, Female, 02, Semporna

[5 marks]

[5 markah]

- ( iii ) Illustrate a result using the SQL command below:

*Gambarkan hasil keluaran menggunakan arahan SQL di bawah:*

```
SELECT RegNo, Name, ClassCode AS NewClass  
FROM STUDENT  
ORDER BY Sex, Address DESC;
```

[6 marks]

[6 markah]

**SOALAN TAMAT**