

6

SULIT



**BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK
KEMENTERIAN PENDIDIKAN TINGGI**

JABATAN KEJURUTERAAN ELEKTRIK

PEPERIKSAAN AKHIR

SESI JUN 2016

DEC5073: DATABASE SYSTEM

TARIKH : 25 OKTOBER 2016

MASA : 2.30 PM - 4.30 PM (2 JAM)

Kertas ini mengandungi **SEBELAS (11)** halaman bercetak.

Bahagian A: Struktur (4 soalan)

Bahagian B: Esei (2 soalan)

Dokumen sokongan yang disertakan : Tiada

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

SECTION A : 60 MARKS**BAHAGIAN A : 60 MARKAH****INSTRUCTION:**

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

ARAHAN:

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

CLO1
C1

QUESTION 1**SOALAN 1**

- (a) State the definition of an information.

Nyatakan definisi maklumat.

[2 marks]

[2 markah]

CLO1
C2

- (b) Compare **FIVE(5)** differences between Database System and File Based System.

Bandingkan LIMA(5) perbezaan diantara Sistem Pangkalan Data dan Sistem Berasaskan FAIL.

[5 marks]

[5 markah]

CLO1
C2

- (c) Build a schema diagram for each relational data in Figure A1.

Bina satu rajah skema untuk setiap data hubungan dalam Rajah A1.

- | |
|---|
| <ul style="list-style-type: none">i. PRODUCT (product_code, product_name, price, brand)ii. BUYS(receipt_no, product_code, quantity, discount, sub_total)iii. RECEIPT(receipt_no, date, customer_no)iv. CUSTOMER (customer_no, name, address, phone_no) |
|---|

Figure A1 /Rajah A1

[8 marks]

[8 markah]

SULIT

QUESTION 2

SOALAN 2

CLO1
C1

(a) State the meaning of the following terminologies:

- i. Entity
- ii. Entity Set

Nyatakan maksud bagi terminologi berikut:

- i. Entiti*
- ii. Set entiti*

[2 marks]

[2 markah]

CLO1
C2

(b) Build an E-R diagram for each of the following scenario.

- i. An author may write many books. A book may be written by many authors.
- ii. A team consists of many players. A player plays for only one team.

Lukiskan rajah E-R bagi setiap senario dibawah.

- i. Seorang penulis boleh menulis banyak buku. Sebuah buku boleh ditulis oleh banyak penulis.*
- ii. Satu pasukan mengandungi banyak pemain. Seorang pemain bermain hanya untuk satu pasukan.*

[5 marks]

[5 markah]

CLO2
C3

(c) Illustrate and explain the following attributes and relationship with the appropriate diagram .

- i. Multivalued attribute
- ii. Derived attribute
- iii. Composite attribute
- iv. Recursive relationship

Dengan bantuan gambarajah yang sesuai, jelaskan jenis atribut dan hubungan berikut:-

- i. *Atribut berbilang nilai*
- ii. *Atribut terbitan*
- iii. *Atribut komposit*
- iv. *Hubungan rekursi*

[8 marks]

[8 markah]

QUESTION 3

SOALAN 3

CLO1
C1

- (a) Identify the following integrity relational types :

Kenalpasti jenis hubungan integriti berikut :

- i) Null
Sifar
- ii) Entity Integrity
Integriti Entiti
- iii) Referential Integrity
Entiti Rujukan

[3 marks]

[3 markah]

CLO1
C2

- (b) By referring to Table A3(a) below :

Dengan merujuk Jadual A3(a) di bawah :

- i) Define Relational Data Structure.
Definisikan Struktur Data Hubungan.
- ii) Use relational algebra and write a syntax to list all staff with a salary below than RM10,000.

SULIT

Gunakan algebra hubungan dan tuliskan sintaks untuk menyenaraikan semua staf yang berpendapatan kurang dari RM10,000.

iii) Draw a suitable table to show the result from Question 3(b)(ii).

Lukiskan jadual yang sesuai menunjukkan keputusan dari soalan 3(b)(ii).

Table A3(a) /Jadual A3(a): STAFF

staffNo	fName	IName	Position	DOB	Salary	BranchNo
SL21	John	White	Manager	1/10/45	3000	B005
SG37	Ann	Beech	Assistant	10/11/60	12000	B003
SG14	David	Ford	Supervisor	24/3/68	18000	B003
SA9	Mary	Howe	Assistant	19/2/70	9000	B007
SG5	Susan	Brand	Manager	3/6/40	24000	B003
SL41	Julie	Lee	Assistant	13/6/65	9000	B005

[5 marks]

[5 markah]

CLO2
C3

(c) From Table A3(b) and Table A3(c), carry out the result based on the following relational algebra.

Daripada Jadual A3(b) dan Jadual A3(c), dapatkan keluaran berdasarkan hubungan algebra berikut.

StudNo	StudName	ICNo	Section	CGPA	CourseCode
JKE01	Saleh	820106-01-5237	DTK5A	3.00	DEC5062
JKE02	Fatimah	820603-08-5822	DTK5A	2.51	DEC5073
JKE03	Ahmad	820719-01-5011	DTK5B	3.21	DEC5073

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

CourseCode	CourseName	Credit Hours
DEC5062	Visual Basic Programming	2
DEC5073	Database System	3

Table A3(c)/ Jadual A3(c): COURSE

- i) π CourseName, Credit Hours (COURSE)
 ii) σ CourseCode = DEC5062 (STUDENT)
 iii) π StudNo, ICNo (σ CourseCode = DEC5073 or Section = DTK5A (STUDENT))
 iv) π StudName, Section (σ CGPA $\geq$ 2.50 and CourseCode = DEC5073 (STUDENT))

[7 marks]

[7 markah]

QUESTION 4**SOALAN 4**CLO
C1

- a) Below is terms applied in SQL command. Define these commands:

Arahan dibawah merupakan arahan yang digunakan didalam arahan SQL.

Definisikan arahan berikut:

- Select
- Order By

[3 marks]

[3 markah]

- b) Using Data Definition Language in SQL command, build the table using the schema given.

Menggunakan Bahasa Data Definisi di dalam SQL, binakan jadual menggunakan skema yang diberikan.

Staff(Name, staff_No, Tel Number, Department, Teaching_experience)

[5 marks]

[5 markah]

Table A4/Jadual A4 :PERSONAL

Name	Age	Occupation	Marital Status
Asma	34	Lecturer	Married
Akmal	27	Engineer	Single
Mike	36	Lecturer	Married
Zamri	37	Salesman	Married

- c) Based on Table A4, analysis the SQL command below and produce the output.
Merujuk kepada Jadual A4, buat analisa arahan SQL di bawah dan keluarkan dapatan.

i. SELECT *

FROM Personal

WHERE Age Between 30 And 35;

ii SELECT Distinct Occupation

FROM Personal;

iii. SELECT Name

FROM Personal

WHERE Nama LIKE %M% And Occupation is Lecturer;

[7 marks]

[7 markah]

SECTION B: 40 MARKS***BAHAGIAN B: 40 MARKAH*****INSTRUCTION:**

This section consists of **TWO (2)** essay questions. Answer **ALL** questions .

ARAHAN:

Bahagian ini mengandungi DUA(2) soalan esei. Jawab SEMUA soalan

CLO2
C3

QUESTION 1***SOALAN 1***

Figure B1 below shows a report of an employee evaluation result in a company, Sinar Teguh IT Solution SDN. BHD. The report contains all information related to one of the employee in the company. Based on the information given, normalize the form starting from UNF to 3NF level of normalization. In the 1NF level, you must present a table to show that the repeating groups has been eliminated from the table and choose the appropriate Primary Keys needed in all of the normalization steps.

Rajah B1 di bawah menunjukkan sebuah laporan keputusan penilaian pekerja bagi syarikat Sinar Teguh IT SDN. BHD. Laporan tersebut mengandungi semua maklumat melibatkan salah seorang pekerja syarikat tersebut. Berdasarkan maklumat yang diberi, lakukan proses normalisasi bermula dari peringkat UNF sehingga 3NF. Pada peringkat 1NF, anda perlu memaparkan jadual untuk menunjukkan kumpulan-kumpulan yang berulang itu telah dihapuskan daripada jadual dan pilih Kekunci Utama bersesuaian yang diperlukan dalam setiap peringkat pernormalisasian.

**SINAR TEGUH IT SOLUTION SDN. BHD.
EMPLOYEE MONTHLY EVALUATION RESULT**

EMPLOYEE NUMBER : STE04002
 EMPLOYEE NAME : Krishan Kumar
 EMPLOYMENT YEAR : 2014
 WORKING SECTION: : Database Design
 ADDRESS : Lot 862 Taman Segar Indah, Kuantan

PROJECT CODE	PROJECT NAME	GRADE	SUPERVISOR NUMBER	DEPARTMENT
FP1303	Mobile Apps Deployment	B+	KM024	Mobile Application Development
DB3032	Database Requirement Analysis	A	SM733	Database Development
FC3038	Software Integration & Testing	B	AH107	Software Development

Figure B1 / Rajah B1

[20 marks]

[20 marks]

CLO2
C3**QUESTION 2****SOALAN 2**

Table B2/Jadual B2:ITEM_ORDERED

CUSTOMER ID	ORDER_DATE	ITEM	QUANTITY	PRICE
10330	30-Jun-2016	Tent	1	28.00
10101	30-Jun-2016	Raft	1	58.00
10298	01-Jul-2016	Skateboard	1	33.00
10101	01-Jul-2016	Tent	4	125.00
10299	06-jul-2016	Parachute	1	1250.00
10339	27-Jul-2016	Umbrella	1	4.50
10449	13-Aug-2016	Unicycle	1	180.79
10439	14-Aug-2016	Ski Poles	2	25.50
10101	18-Aug-2016	Rain Coat	1	18.30
10449	01-Sep-2016	Snow Shoes	1	45.00
10439	18-Sep-2016	Tent	1	88.00
10298	19-Sep-2016	Lantern	2	29.00

Based On Table B2, answer all questions by using Structured Query Language command.

Berdasarkan Jadual B2, jawab semua soalan menggunakan arahan Structured Query Language.

- a) Write the maximum price of any item ordered.

Tuliskan harga maksimum bagi Price untuk item yang di tempah

[4 marks]

[4 markah]

- b) Write the average price of the items ordered in the month of September.

Tuliskan purata harga bagi item yang di tempah di dalam bulan September.

[4marks]

[4 markah]

- c) Show the total number of rows?

Tunjukkan jumlah bilangan baris.

[4 marks]

[4 markah]

- d) For all of the tents that were ordered, produce the price of the lowest tent?

Berdasarkan jumlah khemah yang ditempah, keluarkan harga khemah yang paling murah .

[4 marks]

[4 markah]

- e) Select the item and price for all of the items that the price is greater than 10.00.

Display the results in ascending order based on the price.

Pilih item dan price bagi price yang bernilai lebih dari 10. Paparkan keputusan dalam bentuk menaik berdasarkan harga.

[4 marks]

[4 markah]

SOALAN TAMAT