



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

Sekolah Pendidikan  
Profesional dan  
Pendidikan  
Berterusan  
(SPACE)

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**FINAL EXAMINATION / PEPERIKSAAN AKHIR**  
**SEMESTER I – SESSION 2021 / 2022 / SEMESTER I – SESI 2021 / 2022**  
**PROGRAM KERJASAMA**

COURSE CODE : DDWC 2483 / DDWD 2483  
KOD KURSUS

COURSE NAME : DATABASE  
NAMA KURSUS PANGKALAN DATA

YEAR / PROGRAMME : 2 DDWC / 2 DDWD  
TAHUN / PROGRAM

DURATION : 3 HOURS (INCLUDING SUBMISSION HOUR)  
TEMPOH 3 JAM (TERMASUK MASA PENGHANTARAN)

DATE : DECEMBER 2021  
TARIKH DISEMBER 2021

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**INSTRUCTION / ARAHAN:**

1. The question paper consists of **4 PARTS**: A, B, C. and D  
*Kertas soalan terdiri daripada **4 BAHAGIAN**: A, B, C dan D.*
  2. Answer **ALL** questions and write your answers on the answer sheet.  
*Jawab **SEMUA** soalan dan tulis jawapan anda pada kertas jawapan.*
  3. Write your name, matric no., identity card no., course code, course name, section no. and lecturer's name on the first page (in the upper left corner) and every page thereafter on the answer sheet.  
*Tulis nama anda, no. matrik, no. kad pengenalan, kod kursus, nama kursus, no. seksyen dan nama pensyarah pada muka surat pertama (penjuru kiri atas) kertas jawapan dan pada setiap muka surat jawapan.*
  4. Each answer sheet must have a page number written at the bottom right corner.  
*Setiap helai kertas jawapan mesti ditulis nombor muka surat pada bahagian bawah penjuru kanan.*
  5. Answers should be handwritten, neat and clear.  
*Jawapan hendaklah ditulis tangan, kemas dan jelas menggunakan huruf cerai.*
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**WARNING / AMARAN**

Students caught copying / cheating during the examination will be liable for disciplinary actions and the faculty may recommend the student to be expelled from sitting for exam.  
*Pelajar yang ditangkap meniru / menipu semasa peperiksaan akan dikenakan tindakan disiplin dan pihak fakulti boleh mengesyorkan pelajar diusir dari menduduki peperiksaan.*

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This examination paper consists of **15** pages including the cover.  
*Kertas soalan ini mengandungi **15** muka surat termasuk kulit hadapan.*

**ONLINE EXAMINATION RULES AND REGULATIONS**  
**PERATURAN PEPERIKSAAN SECARA DALAM TALIAN**

1. Student must carefully listen and follow instructions provided by invigilator.  
*Pelajar mesti mendengar dan mengikuti arahan yang diberikan oleh pengawas peperiksaan dengan teliti.*
2. Student is allowed to start examination only after confirmation of invigilator if all needed conditions are implemented.  
*Pelajar dibenarkan memulakan peperiksaan hanya setelah pengesahan pengawas peperiksaan sekiranya semua syarat yang diperlukan telah dilaksanakan.*
3. During all examination session student has to ensure, that he is alone in the room.  
*Semasa semua sesi peperiksaan pelajar harus memastikan bahawa dia bersendirian di dalam bilik.*
4. During all examination session student is not allowed to use any other devices, applications except other sites permitted by course lecturer.  
*Sepanjang sesi peperiksaan pelajar tidak dibenarkan menggunakan peranti dan aplikasi lain kecuali yang dibenarkan oleh pensyarah kursus.*
5. After completing the exam student must inform invigilator via the set communication platform (eg. WhatsApp etc.) about completion of exam and after invigilator's confirmation leave examination session.  
*Selepas peperiksaan selesai, pelajar mesti memaklumkan kepada pengawas peperiksaan melalui platform komunikasi yang ditetapkan (contoh: Whatsapp dan lain-lain) mengenai peperiksaan yang telah selesai dan meninggalkan sesi peperiksaan selepas mendapat pengesahan daripada pengawas peperiksaan.*
6. Any technical issues in submitting answers online have to be informed to respective lecturer within the given 30 minutes. Request for re-examination or appeal will not be entertain if complains are not made by students to their lecturers within the given 30 minutes.  
*Sebarang masalah teknikal dalam menghantar jawapan secara dalam talian perlu dimaklumkan kepada pensyarah masing-masing dalam masa 30 minit yang diberikan. Permintaan untuk pemeriksaan semula atau rayuan tidak akan dilayan sekiranya aduan tidak dibuat oleh pelajar kepada pensyarah mereka dalam masa 30 minit yang diberikan.*
7. During online examination, the integrity and honesty of the student is also tested. At any circumstances student is not allowed to cheat during examination session. If any kind of cheating behaviour is observed, UTM have a right to follow related terms and provisions stated in the respective Academic Regulations and apply needed measures.  
*Semasa peperiksaan dalam talian, integriti dan kejujuran pelajar juga diuji. Walau apa pun keadaan pelajar tidak dibenarkan menipu semasa sesi peperiksaan. Sekiranya terdapat sebarang salah laku, UTM berhak untuk mengikuti terma yang dinyatakan dalam Peraturan Akademik.*

**PART A: TRUE OR FALSE QUESTIONS [10 MARKS]**  
**BAHAGIAN A: SOALAN BETUL ATAU SALAH [10 MARKAH]**

**Instruction:** Answer 'TRUE' for true statement and 'FALSE' for false statement.

**Arahan:** Jawab 'BETUL' untuk pernyataan yang benar dan 'SALAH' untuk pernyataan yang salah.

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1. Relationships link data from individual tables to increase the usefulness of the database.  
*Hubungan menghubungkan data dari jadual individu untuk meningkatkan kegunaan pangkalan data.*
2. A column or a combination of columns which can be used to identify one or more rows (tuples) in a table is called a key of the table.  
*Lajur atau gabungan lajur yang dapat digunakan untuk mengidentifikasi satu atau lebih baris (tupel) dalam sebuah jadual disebut kunci dari jadual.*
3. Duplicate primary key in the same file is allow in a database.  
*Pendua kunci utama dalam fail yang sama dibenarkan dalam pangkalan data.*
4. The term data and information mean the same thing.  
*Istilah data dan maklumat bermaksud perkara yang sama.*
5. Microsoft Access is one of the Database Management System.  
*Microsoft Access adalah salah satu Sistem Pengurusan Pangkalan Data.*
6. A data model is usually expressed in a graphical.  
*Model data biasanya dinyatakan dalam bentuk grafik.*
7. In the context of data models, an entity is a person, place, thing or event about which data will be collected and stored.  
*Dalam konteks model data, entiti adalah orang, tempat, perkara atau peristiwa mengenai data yang akan dikumpulkan dan disimpan.*

8. The keyword **BETWEEN** should be used in a **WHERE** clause.

*Kata kunci BETWEEN harus digunakan dalam klausa WHERE.*

9. Normalization is a process that is used for changing attributes to entities.

*Normalisasi adalah proses yang digunakan untuk mengubah atribut kepada entiti.*

10. Information systems that stored groups of records in separate files were called file processing systems.

*Sistem maklumat yang menyimpan sekumpulan catatan dalam file terpisah disebut sistem pemprosesan fail.*

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**PART B: OBJECTIVE QUESTIONS [30 MARKS]**  
**BAHAGIAN B: SOALAN OBJEKTIF [30 MARKAH]**

**Instruction:** Write the correct answer in your answer sheet.

**Arahan:** Tuliskan jawapan yang tepat di dalam kertas jawapan anda.

A detailed, logical representation of the data for an organization or for a business area.

*Perwakilan data yang terperinci dan logik untuk organisasi atau untuk kawasan perniagaan.*

1. The statements above refer to the what types of data model?

*Pernyataan di atas merujuk kepada apakah jenis model data?*

- A. Relational database model / *Model pangkalan data hubungan*
- B. Object oriented model / *Model berorientasikan objek*
- C. Data flow diagram / *Gambar rajah aliran data*
- D. Entity relationship diagram / *Gambar rajah perhubungan entiti*

2. A good business rules have the following characteristics **EXCEPT**

*Peraturan perniagaan yang baik mempunyai ciri-ciri berikut **KECUALI***

- A. Atomic / *Atom*
- B. Declarative / *Perisytiharan*
- C. Punctual / *Menepati masa*
- D. Precise / *Tepat*

3. An attribute that must be presented for each entity instance is called a \_\_\_\_\_ attribute, whereas an attribute that may not have a value is called an \_\_\_\_\_ attribute.

*Atribut yang mesti dipersembahkan untuk setiap contoh entiti dipanggil atribut \_\_\_\_\_, manakala atribut yang mungkin tidak mempunyai nilai dipanggil atribut \_\_\_\_\_.*

- A. required, mandatory / *wajib, wajib*
- B. required, optional / *diperlukan, pilihan*
- C. optional, required / *pilihan, diperlukan*
- D. mandatory, required / *wajib, diperlukan*

4. The persons who interact with the system through Data Manipulation Language (DML) calls embedded in a program written in host language

*Orang yang berinteraksi dengan sistem melalui panggilan Bahasa Manipulasi Data (DML) yang dibenamkan dalam program yang ditulis dalam bahasa hos*

- A. System developers / *Pembangun sistem*
- B. Database administrator / *Pentadbir pangkalan data*
- C. System analysts / *Penganalisis sistem*
- D. Application programmers / *Pengaturcara aplikasi*

5. An attribute in a relational terminology is known as\_\_\_\_\_.

*Atribut dalam terminologi hubungan dikenali sebagai\_\_\_\_\_.*

- A. record / *rekod*
- B. field / *ruang*
- C. tuple / *tupel*
- D. table / *jadual*

6. The 'NULL' in database represents\_\_\_\_\_.

*'NULL' dalam pangkalan data mewakili\_\_\_\_\_.*

- A. 0
- B. blank space / *ruang kosong*
- C. absence of any value / *ketiadaan sebarang nilai*
- D. none of the above / *tiada satu pun diatas*

7. The WHERE keyword comes before the condition is normal SELECT query. When using the command GROUP BY in the SELECT query, what keyword is used to start the condition section?

*Kata kunci WHERE datang sebelum syarat adalah pertanyaan SELECT biasa. Apabila menggunakan arahan GROUP BY dalam pertanyaan SELECT, apakah kata kunci yang digunakan untuk memulakan bahagian syarat?*

- A. HAVING
- B. FIND

- C. ORDER
- D. PROVIDE

8. Data Manipulation Language (DML) are consists of

*Bahasa Manipulasi Data (DML) terdiri daripada*

- A. CREATE, UPDATE, DELETE, SELECT
- B. CREATE, ALTER, DELETE, SELECT
- C. INSERT, UPDATE, DELETE, SELECT
- D. INSERT, UPDATE, DROP, SELECT

9. The relational database environment has all of the following components **EXCEPT**

*Persekitaran pangkalan data hubungan mempunyai semua komponen berikut **KECUALI***

- A. users / pengguna
- B. database / pangkalan data
- C. separate files / fail berasingan
- D. query languages / bahasa pertanyaan

10. The information of data in a database is called\_\_\_\_\_.

*Maklumat data dalam pangkalan data dipanggil\_\_\_\_\_.*

- A. Hyperdata
- B. Metadata
- C. Teradata
- D. Nodata

11. The rule that a value of a foreign key must appear as value of some specific table is called a\_\_\_\_\_.

*Peraturan bahawa nilai kunci asing mesti muncul sebagai nilai beberapa jadual tertentu dipanggil\_\_\_\_\_.*

- A. Referential constraint / kekangan rujukan
- B. Integrity constraint / Kekangan integriti
- C. Index / Indeks
- D. Functional dependency / Kebergantungan fungsi



12. A functional dependency is a relationship between or among:

*Kebergantungan fungsi ialah hubungan antara atau antara:*

- A. Tables / *Jadual*
- B. Relations / *Perhubungan*
- C. Rows / *Barisan*
- D. Attributes / *Atribut*

13. A physical view of data refers to the way data is handled at a \_\_\_\_\_ its storage and retrieval.

*Pandangan data secara fizikal merujuk kepada cara data dikendalikan di \_\_\_\_\_ tempat penyimpanan dan pengambilannya*

- A. High level / *Tahap tinggi*
- B. Medium level / *Tahap sederhana*
- C. Low level / *Tahap rendah*
- D. Intermediate level / *Tahap pertengahan*

14. \_\_\_\_\_ is the process of generalizing the entities which contain the properties of all the generalized entities.

*\_\_\_\_\_ adalah proses menggeneralisasikan entiti yang mengandungi sifat semua entiti umum.*

- A. Superclass / *Superkelas*
- B. Specialization / *Pengkhususan*
- C. Generalization / *Generalisasi*
- D. Subclass / *Subkelas*

15. Retrieval of data in database is done using \_\_\_\_\_.

*Pemilihan data dalam pangkalan data dilakukan dengan menggunakan \_\_\_\_\_.*

- A. Table / *Jadual*
- B. Report / *Laporan*
- C. Form / *Borang*
- D. Query / *Pertanyaan*



**PART C: SUBJECTIVE QUESTIONS (40 MARKS)**

**BAHAGIAN C: SOALAN SUBJEKTIF (40 MARKAH)**

**Instruction:** Write your answers in your answer sheet.

**Arahan:** Tuliskan jawapan di dalam kertas jawapan anda.

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**QUESTION 1/ SOALAN 1**

- a) What is a database management system (DBMS) and list **TWO (2)** its function? (6M)

*Apakah sistem pengurusan pangkalan data (DBMS) dan senaraikan DUA (2) fungsinya.*

- b) List **FOUR (4)** components of the database environment and its function. (4M)

*Senaraikan EMPAT (4) komponen persekitaran pangkalan data dan fungsinya.*

**QUESTION 2 / SOALAN 2**

- a) What is a foreign key? List **TWO (2)** the properties of a foreign key. (4M)

*Apakah kunci asing? Senaraikan DUA (2) sifat kunci asing.*

- b) Define the following terms: (6M)

*Tentukan terma berikut:*

- i. Maximum cardinality vs minimum cardinality / *kardinaliti maksimum vs kardinaliti minimum*
- ii. Strong entity vs weak entity / *entiti kuat vs entiti lemah*
- iii. Degree vs cardinality / *darjah vs kardinaliti*

**QUESTION 3 / SOALAN 3**

For each of the descriptions below, perform the following tasks:

*Untuk setiap penerangan di bawah, lakukan tugas berikut:*

- a) Identify the degree and the cardinalities of the relationship.

*Kenal pasti tahap dan kardinaliti hubungan.*

- b) Express the relationships in each description graphically with an E-R diagram.

*Nyatakan hubungan dalam setiap keterangan secara grafik dengan gambarajah E-R.*

- i. A book is identified by its ISBN number, and it has a title, a price, and a date of publication. It is published by a publisher, which has its own ID number and a name. Each book has exactly one publisher, but one publisher typically publishes multiple books over time. (5M)

*Sebuah buku dikenali dengan nombor ISBN, dan mempunyai tajuk, harga, dan tarikh penerbitan. Ia diterbitkan oleh penerbit, yang mempunyai nombor ID dan namanya sendiri. Setiap buku mempunyai satu penerbit, tetapi satu penerbit biasanya menerbitkan banyak buku dari masa ke masa.*

- ii. A piano manufacturer wants to keep track of all the pianos it makes individually. Each piano has an identifying serial number and a manufacturing completion date. Each instrument represents exactly one piano model, all of which have an identification number and a name. In addition, the company wants to maintain information about the designer of the model. Over time, the company often manufactures thousands of pianos of a certain model, and the model design is specified before any single piano exists. (5M)

*Pengilang piano ingin menjejaki semua piano yang dibuatnya secara individu. Setiap piano mempunyai nombor siri pengenalan dan tarikh siap pembuatan. Setiap instrumen mewakili satu model piano, yang semuanya mempunyai nombor pengenalan dan nama. Di samping itu, syarikat ingin mengekalkan maklumat mengenai pereka model. Dari masa ke masa, syarikat ini sering menghasilkan beribu-ribu piano model tertentu, dan reka bentuk model ditentukan sebelum ada piano tunggal.*

#### **QUESTION 4 / SOALAN 4**

- a) What is anomaly in database? List all the anomalies. (4M)

*Apakah anomali dalam pangkalan data? Senaraikan semua anomali.*

- b) The following questions is regarding the Table 1 below.

*Soalan berikut adalah mengenai Jadual 1 di bawah.*

SID	CID	S_NAME	C_NAME	GRADE	FACULTY	PHONE
1	IS318	Adams	Database	A	Houston	60192
	IS301		Programming	B	Icedd	45869
2	IS318	Jones	Database	A	Houston	60192
3	IS318	Smith	Database	B	Houston	60192
4	IS301	Baker	Database	A	Icedd	60192
	IS318		Programming	B	Houston	45869

**TABLE 1 / JADUAL 1**

i) In what form is Table 1? Explain the reason. (2M)

*Dalam bentuk apa Jadual 1? Terangkan sebabnya.*

ii) Convert the Table 1 into First Normal Form (1NF). (2M)

*Tukarkan Jadual 1 menjadi Bentuk Normal Pertama (1NF).*

iii) Convert to Second Normal Form (2NF). (2M)

*Tukar ke Bentuk Normal Kedua (2NF).*

**PART D: CASE STUDY QUESTIONS (20 MARKS)**

**BAHAGIAN D: SOALAN KAJIAN KES (20 MARKAH)**

**INSTRUCTION:** Answer all the questions.

**ARAHAN:** Jawab semua soalan.

The fabrics database consists of two tables which are CUSTOMER table and SALES REP table. CUSTOMER table contains information about the customer. Meanwhile, the SALES REP table contains information on the sales representatives.

Pangkalan data pabrik terdiri daripada dua jadual iaitu jadual CUSTOMER dan jadual SALES REP. Jadual CUSTOMER mengandungi maklumat mengenai pelanggan. Sementara itu, jadual SALES REP mengandungi maklumat mengenai wakil penjualan.

**CUSTOMER Table**

Cus_ID	Cus_Name	Street	City	State	Postal Code	Balance	Amount Paid	SalesRep Num
AM23	Amy's Store	223 Johnson	Oxford	TN	37021	195.00	1695.00	44
BF34	Barbara's Fashion	1939 Jackson	Lowton	TN	37084	150.00	0.00	51
BL15	Blondie's on Main	3294 Main	Oxford	TN	37021	555.00	1350.00	49
CM09	Casual by Marie	3140 Houston	Ashton	VA	20123	295.00	1080.00	51
CY12	Curlin Yoga Studio	1632 Clark	Georgetown	NC	28794	145.00	710.00	49
DG14	Della's Designs	312 Gilham	Granger	NC	27036	340.00	850.00	44
EC07	Environmentally Casual	1805 Broadway	Pineville	VA	22503	0.00	1700.00	44
FN19	Fitness Counts	675 Main	Oxford	TN	37021	345.00	19950.00	51
JN34	Just Natural	2200 Lawrence	Ashton	VA	20123	360.00	700.00	49
LB20	Le Beauty	13 Devon	Lowton	TN	37084	200.00	1250.00	49
NC25	Nancy's Place	1027 Wells	Walburg	NC	28819	240.00	550.00	44
RD03	Rose's Day Spa	787 Manroe	Pineville	VA	22503	0.00	975.00	51



2. Create the SALES REP table using the structure below. (3.5M)

*Buat jadual SALES REP menggunakan struktur di bawah.*

FIELD NAME	DATA TYPE	FIELD SIZE	PRIMARY KEY?	DESCRIPTION

3. Write CUSTOMER table using SQL query. (2M)

*Tulis jadual CUSTOMER menggunakan pertanyaan SQL.*

4. Write SQL statement to display all the information of all Sales Rep. (1M)

*Tulis pernyataan SQL untuk memaparkan semua maklumat dari semua Sales Rep.*

5. Display the Cus\_ID, Cus\_Name, Amount Paid, Sales Rep Number fields for all customers where the Sales Rep Number is 49. (2M)

*Paparkan medan Cus\_ID, Cus\_Name, Amount Paid, Sales Rep Number untuk semua pelanggan di mana Sales Rep Number adalah 49.*

6. There is new customer has been inserted in a fabric database. Following is the detail of the new customer. (3M)

*Ada pelanggan baru telah dimasukkan ke dalam pangkalan data kain. Berikut adalah perincian pelanggan baru.*

Cus_ID: UD24
Cus_Name: Unicorn Destiny
Street: 378 Wall Street
City: Sydney
State: SD
Balance: 259.00
Amount Paid; 1000.00
Sales Rep: 44

Write the SQL statement to insert the new records of a customer.

*Tulis pernyataan SQL untuk memasukkan rekod baru pelanggan.*

7. Join the SALES REP table and the CUSTOMER table. Include the Cus\_ID, Cus\_Name and balance from CUSTOMER table. Include the Sales Rep Number and Last Name fields from SALES REP table. Show and display the output. (2M)

*Sertailah jadual SALES REP dan jadual CUSTOMER. Sertakan Cus\_ID, Cus\_Name dan balance dari jadual CUSTOMER. Sertakan Sales Rep Number dan Last Name dari jadual SALES REP. Tunjukkan dan paparkan outputnya.*

8. Create and design the form for the SALES REP table. (2M)

*Cipta dan reka bentuk borang untuk jadual SALES REP.*



**END OF QUESTIONS / SOALAN TAMAT**