STUDENT ID NO

VENUE   :

SEAT NO :

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2019/2020

TIS3351 – ADVANCED DATABASE
(All sections / Groups)

3 MAR 2020
2.30 p.m. – 4.30 p.m.
(2 Hours)

Question	Mark
1	
2	
3	
4	
Total	

INSTRUCTIONS TO STUDENT

1. This question paper consists of 6 printed pages (including cover page).

2. Attempt all questions. The distribution of the marks for each question is given.

3. Write your answers in the answer booklet provided.

QUESTION 1 [9 marks]

(a) Given two tables below, Tab1 and Tab2, what is the output of each query statement from statement (i) to statement (iv).

Tab1

C1	C2
A	11
B	12
C	13

Tab2

CX	CY
A	21
C	22
D	23

(i)

```
SELECT *
FROM Tab1, Tab2;
```
[1]

(ii)

```
SELECT *
FROM Tab1 a INNER JOIN Tab2 b
ON a.c1 = b.cx;
```
[1]

(iii)

```
SELECT *
FROM Tab1 LEFT OUTER JOIN Tab2
ON Tab1.c1 = Tab2.cx;
```
[2]

(iv)

```
SELECT *
FROM Tab1 FULL OUTER JOIN Tab2
ON Tab1.c1 = Tab2.cx;
```
[2]

(b) Draw an example of a star schema with at least two dimension tables.

[3]

QUESTION 2 [10 marks]

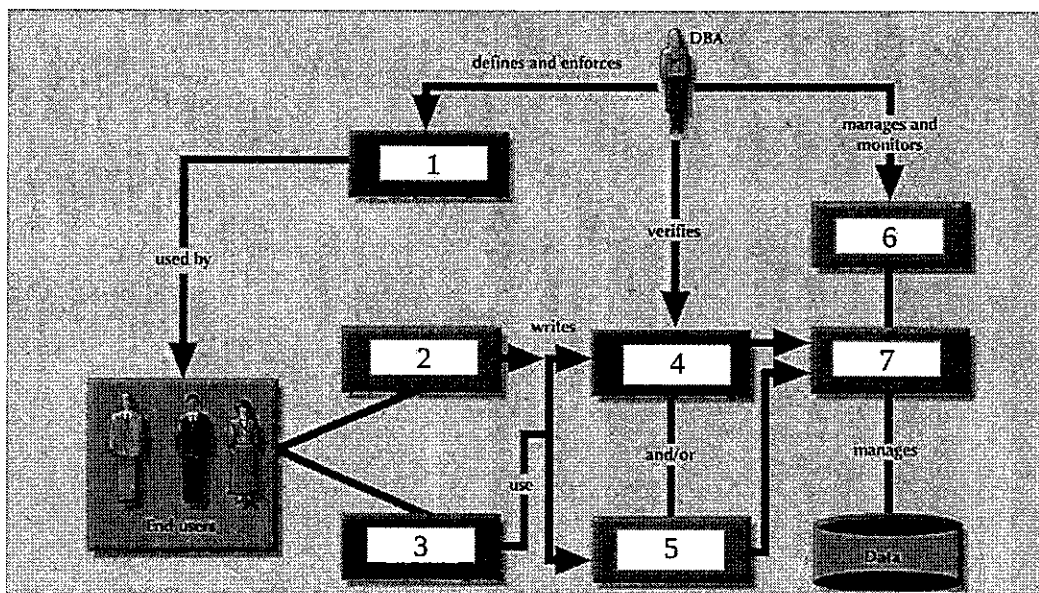(a) What is a transaction log, and what is its function?

[4]

(b) Below are a diagram of DBA activities and a diagram of a business intelligence framework. Fill in each blank (labelled 1 to 12) in the diagrams by selecting a word from a word list. Each word can be selected only once. Write your answer in the answer booklet.
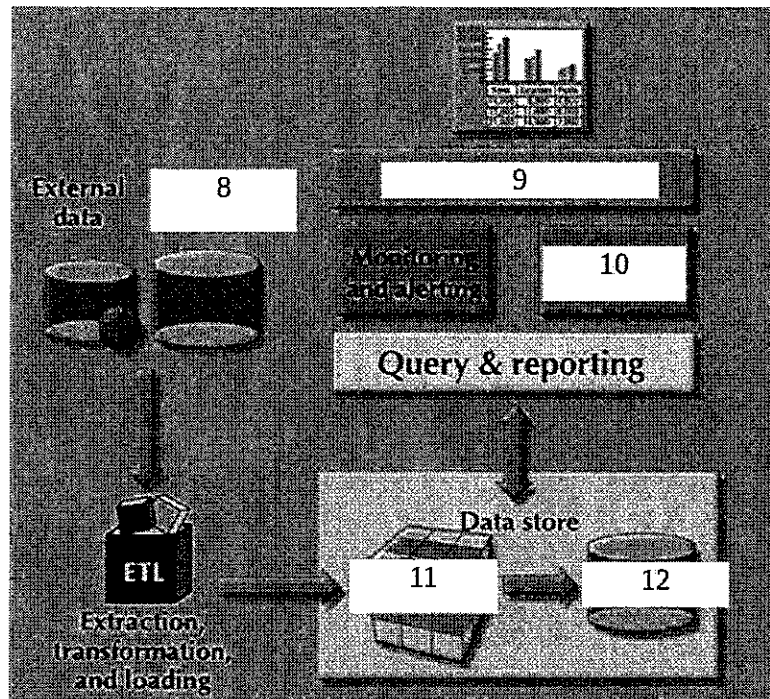
Word list :

Procedures and Standards	Operational data	DBMS interface	DBA interface	Data Visualization
Knowledge	Programmer	Data warehouse	Distributed DBMS	DBMS
Transaction	Backup	Recovery	Information	XQuery
Deadlock	Data analytics	Application programs	Data mart	Managers and clerks

[6]

DBA Activities

Business Intelligence Framework

QUESTION 3 [10 marks]

(a) What are the traditional 3 Vs of Big Data? List and briefly describe each of them.

[3]

(b) Referring to the XML document given below, what is the output of each of the XPath predicates (i) to (v)?

```
<dept>
    <bldg>101</bldg>
    <employee>
        <id>901</id>
        <name>John Doe</name>
        <phone>408 555 1212</phone>
        <office>344</office>
    </employee>
    <employee>
        <id>902</id>
        <name>Peter Pan</name>
        <phone>408 555 9918</phone>
        <office>216</office>
    </employee>
</dept>
```

[5]

(i) `/dept/employee/name`

(ii) `/dept/employee/name/text()`

(iii) `/dept/employee/*/text()`

(iv) `/dept//phone`

(v) `//employee[office="344" OR office="216"]/id`

(c) What is the difference between the CLOB data type and BLOB data type in IBM DB2?

[2]

QUESTION 4 [11 marks]

(a) Five desirable DDBMS transparency features are
i) Distribution transparency
ii) Transaction transparency
iii) Failure transparency
iv) Performance transparency
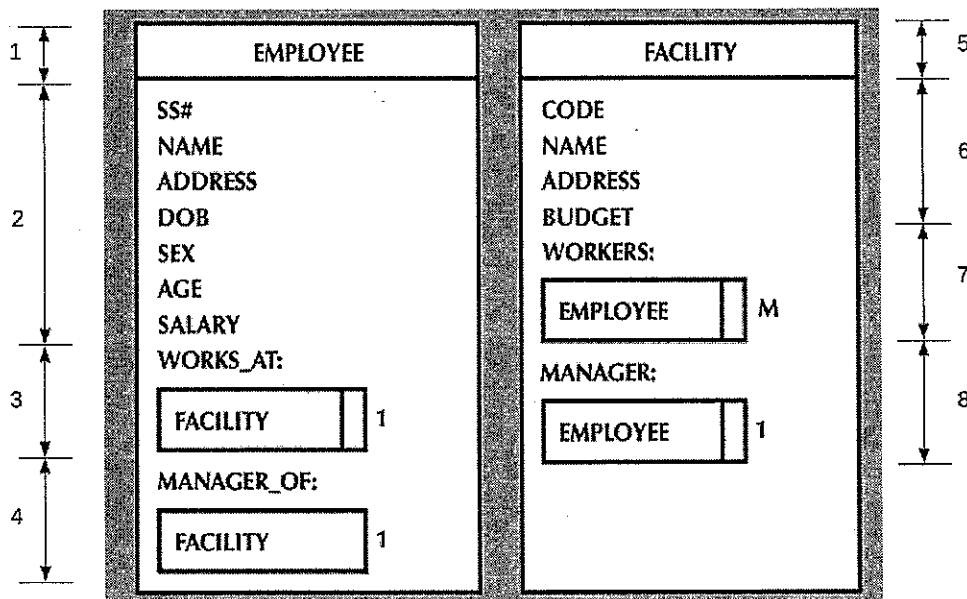v) Heterogeneity transparency
Explain each of them.

[5]

(b) Explain the meaning of each part (1 to 8) of the class diagram below showing two interobject relationships in an object-oriented data model. Part 1 and part 5 have been answered for you as examples of the expected answers.

Part 1:
The name of the class which is EMPLOYEE
Part 5:
The name of the class which is FACILITY

[6]

End of Page