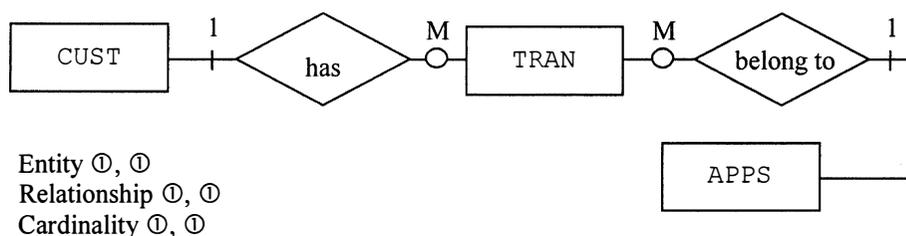


**Paper 2A**

		<b>Marks</b>
1. (a) (i)	SELECT TITLE, PRICE FROM BOOKS WHERE AUTHOR = 'CHARLES DICKENS' ORDER BY TITLE <u>ASC</u>	2 ① ①
(ii)	SELECT TITLE FROM BOOKS WHERE TITLE LIKE '%AUST%' AND CAT = 'TOURISM'	2 ① ①
(iii)	SELECT SNAME FROM SHELF WHERE SCODE NOT IN (SELECT SCODE FROM BOOKS WHERE CAT = 'FICTION')	3 ① ① ①
(iv)	SELECT CAT, SUM(PRICE) FROM BOOKS, SALES WHERE SALES.ISBN = BOOKS.ISBN GROUP BY CAT	3 ① ① ①
(b)	<b>Referential integrity</b> It causes problem when the sales revenue has to be evaluated.	1 1
(c)	Decompose SALES into two tables. T1 (TNO, SDATE) T2 (TNO, ISBN, QTY) where QTY is the quantity of the book.	2
	① Practical idea	
2. (a) (i)	It improves the speed of searching.	1
(ii)	CREATE INDEX IND ON CAND(CNO) ①	2
	SUBJCODE	
(iii)	WHERE	1
(b) (i)	The field is more frequently accessed by SQL commands.	1
(ii)	The overhead on the index file is very large.	1
(c)	SELECT CNO, CNAME FROM CAND WHERE CDOB <="1990-12-31" ①	2
	YEAR(CDOB) <= 1990	
(d)	TNO	1
(e)	Select those markers and candidates come from the same training centres.	1

- (f) (i) CAND(CNO, CNAME, SEX, CDOB, TNO, SBJCODE) 1  
SBJ(SBJCODE, SBJNAME) 1  
 Primary key: SBJCODE
- (ii) Amount of data duplication is reduced. / Avoid data anomalies (data integrity is upheld) 1
- (iii) Querying a normalised database might incur significant overhead because the retrieval of data from multiple tables needs to locate and join different tables in order to process the desired data. Join operations reduce database performance. 1

3. (a) 6



- (b) A prototype is an early sample/version of the store. 1  
 Mr Chan wants to collect users' feedback and try to build the expected deliverable without having major changes when the store is developed. It enhances the precision of the system by relevant parties. 1
- (c) (i) The format of some current data may not be suitable for the new system. A conversion should be taken place in order to be applicable to the new system. 1
- (ii) He cannot use some real data for testing. 1  
 He needs to spend much effort to create some pseudo data for users to test. 1
- (d) (i) These web pages may include many data retrieval requests to the database server from time to time that are over the capacity of the database. 2
- (ii) Fine-tune the SQL commands / Install more servers / Fine-tune the balancing between database servers 2

		Marks
4.	(a) (i) Boolean	1
	(ii) AVER It can be calculated by RATING.	1 1
	(iii) RATING It has to be a positive integer ranging from 0 to 10/other values given by the viewer has to be rejected.	1 1
	(b) (i) Design database schema. / Analyse query statistics. / Optimise SQL commands.	2
	(ii) UPDATE, INSERT, DELETE, DROP, ALTER	1×2
	(c) (i) A candidate key is similar to a primary key that it can uniquely identify records. (uniqueness)	1
	(ii) URL	1
	(d) A distributed database model supports multiple locations. Each location has its own database so that the network traffic can be reduced.	1
	A parallel database model supports concurrent operations such as SQL requests from users. The server can break down a SQL request into a number of execution threads.	1
	(e) (i) Distributed database: $300,000 + 100,000 \times 5 = 800,000$ Parallel database: $900,000 + 100,000 \times 2 = 1,100,000$ Distributed database model is better.	2
	① calculation	
	(ii) $300,000 + n \times 5 = 900,000 + n \times 2$ $n = 200,000$ When there are more than 200,000 queries per month, the parallel database model is better.	2
	① calculation	