

THE HONG KONG ASSOCIATION FOR COMPUTER EDUCATION

INFORMATION AND COMMUNICATION TECHNOLOGY

MOCK EXAMINATION 2018

PAPER 2 (A)

MARKING SCHEME

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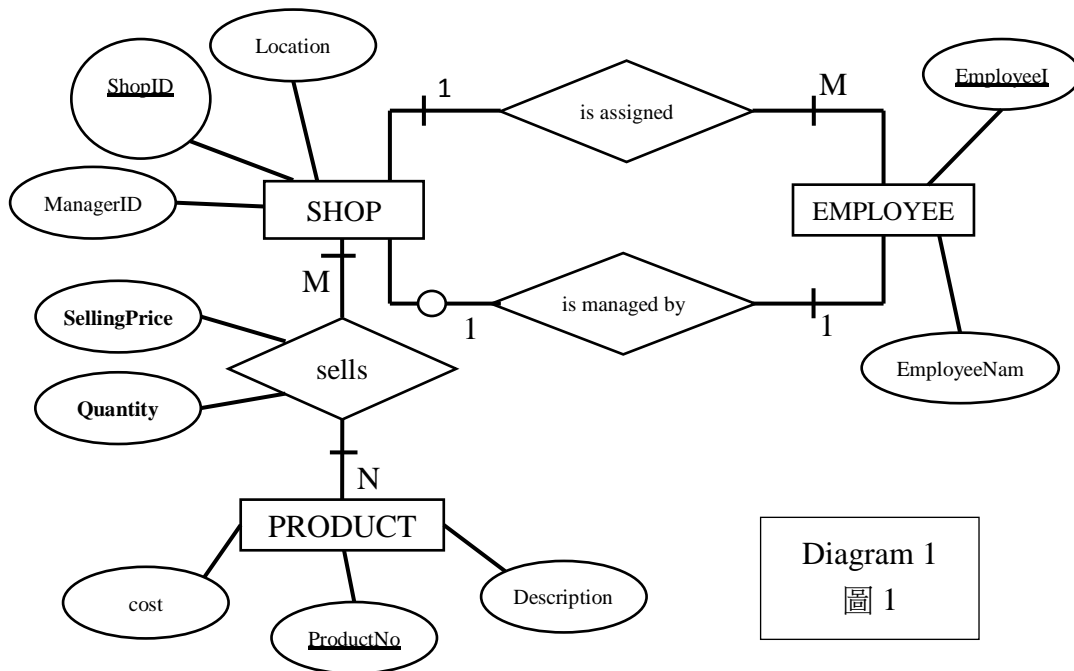
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1 (a)	SELECT COUNT(*) FROM VIDEO V , USER U	1
	WHERE V.P_ID = U.P_ID	1
	AND P_DATE BETWEEN #1/7/2017# and #31/7/2017#	1
	AND P_NAME LIKE "Chan%"	
	① for COUNT (*), ① for joining condition,	
	① for BETWEEN #1/7/2017# and #31/7/2017# and P_NAME LIKE "Chan%"	
(b)	SELECT P_ID from VIDEO WHERE LENGTH = (SELECT	1
	MAX(LENGTH) FROM VIDEO)	1
(c)	SELECT P_NAME FROM USER WHERE P_ID NOT IN	1
	(SELECT P_ID FROM VIDEO)	1
	Alternative:	
	SELECT P_NAME FROM USER U	
	LEFT JOIN VIDEO V ON V.P_ID = U.P_ID ①	
	WHERE U.PID IS NULL ①	
(d)	SELECT LOCATION, SUM(VIEWS)	1
	FROM VIDEO AS V, USER AS U	
	WHERE V.P_ID = U.P_ID	1
	GROUP BY LOCATION	1
	ORDER BY SUM(VIEWS) DESC	1
(e)	(i) S145789	1
	S214579	1

	(ii) Find the User ID of the user who will view the video using <u>more than one device</u> and the user who will view the video from <u>more than one location</u> .	1
2	(a) CREATE TABLE EXAM (SID CHAR(7) , SUBJECT CHAR(4) , MARK NUMERIC(2))	1
	(b) ALTER TABLE STUDENT ALTER COLUMN CNAME CHAR(30)	1
	(c) (i) CREATE INDEX <u>I_SID</u> ON <u>EXAM(SID)</u>	1
	(ii) Improve the searching speed.	1
	(d) UPDATE EXAM SET <u>MARK = MARK + 2</u> WHERE SID in (<u>SELECT SID FROM STUDENT WHERE CLASS = '3A'</u>)	1
	(e) (i) SID	1
	(ii) No, referential integrity was ensured by the foreign key / All the SID in EXAM should refer to the SID in STUDENT	1
	(f) (i) (1) The processing time of queries for the data of a particular year will decrease. (2) No need to join different tables in the queries, which made the SQL commands simpler.	1
	(ii) The field, School year, should be added for both tables, STUDENT and EXAM to indicate years of the records. The field, Active, should be added for STUDENT to show whether the students still study in the school.	1
3	(a) primary key : ProductNo + ShopID	1
	(b) Table SHSTOCK Foreign key ProductNo , ShopID	1
	(c) The ProductNo in SHSTOCK is a foreign key references the ProductNo in the table Product. / Modification to ProductNo in table PRODUCT should be prohibited if it is being referenced by a foreign key. / Deletion of a record in the PRODUCT table is allowed only when the corresponding record in SHSTOCK has been deleted. (any reasonable answer)	1

3. (d) The field selling_price is a derived attribute. The field depends on the value of another field . For instance, selling_price=cost*2.5. (Derived attribute + explanation) 1
- (e) (i) Move the field selling_price to the table SHSTOCK. So the field selling_price can vary in different values according to shop's location. 1
- (e) (ii) @pair of cardinality and participation constraint 1 x 3
@Name of entity 1 x 2



- (f) (i) There is multi-valued attribute (Need to specify the field) in the table ORDERS. So the table ORDERS is not in first normal form (1 NF). 1
- (ii) ORDER (Order_id, address, Customer_id) 1
CUSTOMER (Customer_id, name) 1
OrderDetails (Order_id, Good_id, Quantity) 1
GOOD(Good_id, Description, Price) 1
* deduct 1 mark for not underlining any primary key
4. (a) database administrator, maintenance and monitoring of database 1 + 1
database designer, design table structure and constraints
data entry operator, input data into database
system analyst, define system requirement, database design
programmer, coding / application development
database developer, develop SQL commands
(any one pair of personnel and corresponding duty)
- (b) (i) Design 1
Problem Analysis 1

Testing

(ii) Advantages:

- Improved productivity in development
- Improved quality through automated checking
- Automatic preparation and update of documentation
- Encouragement of prototyping and incremental development
- Automatic preparation of program code from requirements definition
- Reduced maintenance systems

Disadvantages:

- Need for specialized training
- Limitations in flexibility of documentation
- Inadequate standardization
- Slow implementation
- Unrealistic expectations

(Sources: http://databasemanagement.wikia.com/wiki/CASE_Tools)

(c) (i) Report,

It output the summarized information from database.

(ii)

Update of customer information	
CustomerID:	<input type="text"/>
Name:	<input type="text"/>
No. of purchases:	<input type="text"/>
Month:	<input type="text"/>
Amount:	<input type="text"/>

① for including all fields, ① for reasonable layout

(iii) Sum / count function

Find the customers with expanded most / the largest number of purchase

(d) No, the customer information should be used by Mary's company only. / privacy reason