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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2017/2018**

COURSE NAME : DATABASE SYSTEMS
COURSE CODE : BIT 20803
PROGRAMME CODE : BIT
EXAMINATION DATE : JUNE / JULY 2018
DURATION : 3 HOURS
INSTRUCTION : ANSWER ALL QUESTIONS

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THIS QUESTION PAPER CONSISTS OF **FOUR (5)** PAGES

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- Q1** (a) (i) State **ONE (1)** reason why referential constraint is importance. (2 marks)
- (ii) Give **ONE (1)** example of referential constraints. (2 marks)
- (b) Give **ONE (1)** difference for **Q1(b)(i) – Q1(b)(ii)**.
- (i) weak entity and strong entity (3 marks)
- (ii) single valued attribute and multi valued attribute (3 marks)

- Q2** Construct the correct SQL command for **Q2(a)** to **Q2(e)** based on schema table in **Figure Q2**.

```
doctor(doctorno, name, department, salary, phonenumber)
patient (patientno, firstname, lastname, address, phoneno)
MedicineIntake(medicineid, medicinename, patientno,
medintakedaily, meddosage, doctorno)
Medicine(medicineid, medname, medduedate, medtype)
Appointment(apptid, patientno, doctorno, date, time, room)
```

Figure Q2

- (a) List all doctor with a salary between RM5000 and RM 10000. (2 marks)
- (b) Find numbers of doctors in each department. (2 marks)
- (c) Find all information on appointment in June 2017. (2 marks)
- (d) Display all patients' names that consume Paracetamol three times a day as their medicine. (3 marks)
- (e) Display all patients' first names, patients' last names and doctor number that in charge during their appointment with column heading Appointment. (4 marks)

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- (f) Display the doctor number, department and salary for those departments with a maximum salary greater than RM 15000. The example must exclude department pediatric. (7 marks)

- Q3** (a) Describe the purpose of mission statement in database life cycle (DBLC) planning phase. (4 marks)

- (b) **Figure Q3** shows representation of a database system with multiple user views. Answer **Q3(a)(i) – Q3(a)(ii)** based on **Figure Q3**.

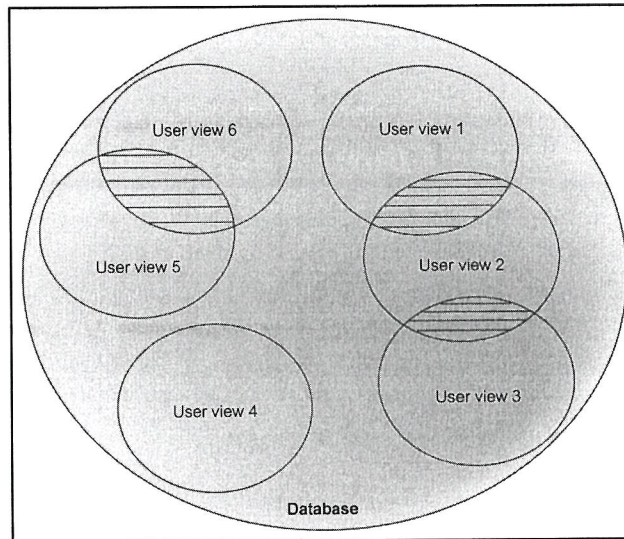


Figure Q3

- (i) Discuss on the different of user views on user 5 and user 6 with user 1, 2 and 3. (4 marks)
- (ii) Give **ONE (1)** example based on each view in **Q3(a)(i)**. (4 marks)
- (c) Draw a diagram to differentiate between centralized approach and view integration approach in requirements collection and analysis phase. (8 marks)

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Q4 (a) State **ONE (1)** advantage of normalization. (2 marks)

(b) Consider the following relation:

Table Q4

PatID	PatName	AppointDate	Time	DoctorID	DoctorName	PatAddress	ApptID	PatPhone	DocDept
001	Ahmad	12/1/18	8.00 am	D123	Sally	Batu Pahat	A102	0123456765	Ortho
010	Chan	20/1/18	10.00 am			Parit Raja	A222	072349876	Ortho
111	Suzi	25/1/18	9.00 am	D112	Halim	Sri Gading	A128	074532819	Oncology
210	Tina	10/2/18	14.00 pm	D222	Farah	Parit Raja	A211	074567895	Pediatric

(i) Based on **Table Q4**, convert the relation into a set of First Normal Form (1NF) relations. (4 marks)

(c) Based on **Table Q4**, normalize this relation successively into:

(i) Second Normal Form (2NF) (6 marks)

(ii) Third Normal Form (3NF) (8 marks)

Q5 Answer **Q5 (a) – Q5 (b)** based on **Figure Q5**.

Gemilang College academic's office maintains data about the following entities:

- (a) courses, including number, title, credits, syllabus, and prerequisites;
- (b) course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom;
- (c) students, including student-id, name, and program; and
- (d) instructors, including identification number, name, department, and title.

Further, the enrolment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modelled.

Figure Q5



- (a) Draw an entity-relationship diagram based on the information provided in **Figure Q5**. (14 marks)
- (b) Describe each of the following concepts, and give an example from entity relationship diagram produced in **Q5 (a)**.
- (i) Primary Key (3 marks)
- (ii) Composite key (3 marks)
- Q6** (a) Give **ONE (1)** comparison between dynamic web pages and static web pages. (3 marks)
- (b) Standardization and cross platform support are **TWO (2)** advantages of the Web-DBMS. Discuss. (4 marks)
- (c) Reliability is one of Web-DBMS disadvantage. Justify. (3 marks)

- END OF QUESTION-

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