UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2021/ 2022

COURSE NAME	:	DECISION SUPPORT SYSTEM
COURSE CODE	:	BIT 30303
PROGRAMME CODE	:	BIT
EXAMINATION DATE	:	JULY 2022
DURATION	:	3 HOURS
INSTRUCTION	:	1. ANSWER ALL QUESTIONS

2. THIS FINAL EXAMINATION IS AN **ONLINE ASSESSMENT** CONDUCTED VIA **CLOSED BOOK**.

3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK.

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THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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Q1 (a) Define rationality and bounded rationality.

(4 marks)

(b) Discuss how to relate **Q1(a)** in decision making process.

(5 marks)

(c) Discuss how the manager defines the decision success in the company.

(6 marks)

Q2 (a) Describe the design phase in Simon model.

(4 marks)

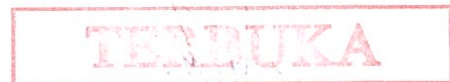(b) Based on **Figure Q2(b)**, answer **Q2(b)(i)** and **Q2(b)(ii)**.

```
The real-estate development firm considers several
development projects, includes building and leasing an
office park, warehouse, mall and condominiums, purchasing
a parcel of land and building an office to rent. The
financial success of these projects depends on interest
rate movement in the next 5 years. The various
development projects and their 5-year financial return
(in US$1,000,000s) given that interest rates will
decline, stable or increase are shown in the following
payoff table.
```

Project	Interest Rate		
	Decline	Stable	Increase
Office park	0.5	1.7	4.5
Office Building	1.5	1.9	2.5
Warehouse	1.7	1.4	1
Mall	0.7	2.4	3.6
Condominiums	3.2	1.5	0.6
Probability	0.5	0.4	0.1

Figure Q2 (b)

(i) Construct the decision tree.

(8 marks)

(ii) Based on **Q2(b)(i)**, calculate the expected value and give your decision.

(8 marks)

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Q3   (a)   Describe the following search approaches of decision making process.

(i)   Analytics technique

(5 marks)

(ii)   Heuristics

(5 marks)

(b)   Based on **Figure Q3 (b)**, answer **Q3 (b)(i)** and **Q3 (b)(ii)**.

```
A diet expert at ABC hospital has to decide the diet mix food
for his 100 customers. Dietary instructions for each customer
must at least:
    •  1 gram of protein
    •  1 gram of fat
    •  3 grams of carbohydrates
Additional instructions are the carbohydrate content should
not exceed 6 grams per customer. The availability of protein,
fat and carbohydrate in grams of chicken, rice and bread is
given below:
```

	Protein	Fat	Carbohydrate	Price / kg
Chicken	10	2	0	30
Rice	2	1	15	5
Bread	2	0	10	4

Figure Q3 (b)

(i)   Construct the mathematical model for the above diet mix food.

(10 marks)

(ii)   Calculate the minimum cost of the diet mix food.

(10 marks)

Q4   (a)   Discuss the different between information system and decision support system development.

(4 marks)

(b)   Describe **FOUR (4)** features of well-designed user interface in decision support system.

(4 marks)

(c)   Based on **Figure Q4 (c)**, answer **Q4 (c)(i)** and **Q4 (c)(ii)**.

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A rental car company owns a number of vehicles. The vehicles, when not rented, are located in a number of parking lots around town. The company does not own these parking lots and is charged differently for each vehicle. The rate charged depends on the following: the size and type of the vehicle, the location of the parking lot used, the duration of parking, and the time of parking. The rates are lower during the weekend and at night. The management is concerned about the minimized parking expenses.

Figure Q4(c)

(i)   Create a form enables the user to add/delete/update the database.

(6 marks)

(ii)   Create a decision form to find the best assignment of vehicles to parking lots.

(6 marks)

Q5   (a)   Discuss how communication-driven helps in group decision making process.

(10 marks)

(b)   Based on Figure Q5 (b), suggest the model of group decision support system for the company.

```
A  small  consulting  firm  use  internet  to  facilitate
collaboration  by  its  employees  who  are  professionals
working  at  home  offices  and  at  client  sites.  Even  the
manager  of  the  consulting  firm  could  work  in  a  home
office  and  communicate  and  collaborate  with  the  other
members of the firm.
```

Figure Q5 (b)

(10 marks)

- END OF QUESTIONS -

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