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UNIVERSITI SAINS MALAYSIA

Second Semester Examination  
2015/2016 Academic Session

June 2016

**CMT423 – Decision Support Systems & Business Intelligence**  
*[Sistem Sokongan Keputusan & Kecerdasan Perniagaan]*

Duration : 2 hours  
*[Masa : 2 jam]*

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**INSTRUCTIONS TO CANDIDATE:**

***[ARAHAN KEPADA CALON:]***

- Please ensure that this examination paper contains **FOUR** questions in **FIVE** printed pages before you begin the examination.

*[Sila pastikan bahawa kertas peperiksaan ini mengandungi **EMPAT** soalan di dalam **LIMA** muka surat yang bercetak sebelum anda memulakan peperiksaan ini.]*

- Answer **ALL** questions.

*[Jawab **SEMUA** soalan.]*

- You may answer the questions either in English or in Bahasa Malaysia.

*[Anda dibenarkan menjawab soalan sama ada dalam bahasa Inggeris atau bahasa Malaysia.]*

- In the event of any discrepancies, the English version shall be used.

*[Sekiranya terdapat sebarang percanggahan pada soalan peperiksaan, versi bahasa Inggeris hendaklah diguna pakai.]*

1. (a) Write short notes on any **three (3)** of the following terms or phrases:

- Customer relationship management
- Decision making environment
- Spreadsheet-oriented decision support system (DSS)
- Linear programming
- Web analytics
- Community of practice (CoP)

*Tulis nota ringkas mengenai mana-mana **tiga (3)** istilah atau frasa yang berikut:*

- *Pengurusan perhubungan pelanggan*
- *Persekitaran pembuatan keputusan*
- *Sistem sokongan keputusan (DSS) berorientasikan lembaran hampan*
- *Pengaturcaraan linear*
- *Analitik web*
- *Komuniti amalan (CoP)*

(6/100)

(b) State and discuss **two (2)** advantages of group support systems (GSS).

*Nyatakan dan bincangkan **dua (2)** kelebihan sistem sokongan kumpulan (GSS).*

(6/100)

(c) In the knowledge management system's six-step cycle (i.e. create, capture, refine, store, manage, and disseminate knowledge), which step ensures that knowledge can be referred to and reused for decision-making in the future? Discuss your answer.

*Dalam kitaran enam langkah sistem pengurusan pengetahuan (iaitu penciptaan, penangkapan, penghalusan, penyimpanan, pengurusan, dan penyebaran pengetahuan), langkah yang manakah memastikan pengetahuan boleh dirujuk dan diguna semula untuk pembuatan keputusan pada masa yang akan datang? Bincangkan jawapan anda.*

(6/100)

2. Assume that you own a large and successful restaurant, and are in the process of deciding the budget for the next financial year.

*Andaikan anda memiliki suatu restoran yang besar dan berjaya, dan dalam proses menentukan belanjawan untuk tahun kewangan berikutnya.*

(a) Using the framework for decision support, what decision type, and type of control would be relevant in deciding the budget? Justify your answer.

*Dengan menggunakan rangka kerja sokongan keputusan, apakah jenis keputusan, dan jenis kawalan yang relevan dalam menentukan belanjawan itu? Justifikasikan jawapan anda.*

(6/100)

- (b) State and discuss **three (3)** factors that affect decision making in humans.

*Nyatakan dan bincangkan **tiga (3)** faktor yang memberi kesan terhadap pembuatan keputusan manusia.*

(12/100)

- (c) In forming a team to work in the restaurant's budget, discuss how you would consider the factors from Question 2(b).

*Dalam membentuk suatu pasukan untuk menentukan belanjawan restoran itu, bincangkan cara bagaimana anda akan mempertimbangkan faktor-faktor dalam Soalan 2(b).*

(4/100)

- (d) Budgeting for a restaurant involves budgeting for sales, cost of sales, and operating expenditure. Sales involves the sales of food and beverages, while cost of sales involves the cost of sales of food and beverages. Operating expenditure involves payroll, and utilities. The gross profit of the restaurant is derived from sales and cost of sales, while the net profit is derived from the gross profit and operating expenditure. Represent the model of the restaurant budgeting problem using an influence diagram.

*Pembelanjawan untuk satu restoran melibatkan membelanjawan jualan, kos jualan, dan perbelanjaan mengurus. Jualan melibatkan jualan makanan dan minuman, manakala kos jualan melibatkan kos jualan makanan dan minuman. Perbelanjaan mengurus melibatkan penggajian, dan kemudahan. Keuntungan kasar restoran diterbitkan daripada jualan dan kos jualan, manakala keuntungan bersih diterbitkan daripada keuntungan kasar dan perbelanjaan mengurus. Wakilkan model masalah membelanjawan restoran ini dengan menggunakan gambar rajah pengaruh.*

(6/100)

- (e) Based on Holsapple and Whinston's classification of DSS (into six different types), which classification would best suit the process of budgeting? Justify your answer.

*Berdasarkan pengelasan DSS Holsapple dan Whinston (kepada enam jenis yang berbeza), pengelasan yang manakah paling sesuai untuk proses membelanjawan? Justifikasikan jawapan anda.*

(4/100)

- 3 (a) Briefly describe **five (5)** techniques (or algorithms) that are used for classification modeling.

*Terangkan secara ringkas lima (5) teknik (atau algoritma) yang digunakan untuk pengelasan pemodelan.*

(10/100)

- (b) The development of expert systems is often described as a tedious process. What activities does it typically include? Explain.

*Pembangunan sistem pakar sering digambarkan sebagai proses yang rumit. Apakah aktiviti-aktiviti yang biasanya terlibat? Jelaskan.*

(10/100)

4. (a) Identify, with a brief description, each of the four steps in the sentiment analysis process.

*Kenal pasti dengan penerangan ringkas, setiap satu daripada empat langkah dalam proses analisis sentimen.*

(8/100)

- (b) List the **four (4)** categories of metrics that are generally used for Web Analytics, and give **two (2)** examples for each category.

*Senaraikan empat (4) kategori metrik yang secara amnya digunakan untuk Analitik Sesawang, dan berikan dua (2) contoh bagi setiap kategori.*

(12/100)

- (c) Given the following transaction data:

**Transaction ID Items**

1001 {Jacket, Boots}  
 1002 {Milk, Cheese, Bread, Shoes}  
 1003 {Cloth, Bread}  
 1004 {Milk, Bread, Shoes, GreetingCard, Chicken, Apple, Soup}  
 1005 {Cheese, Shoes, Beef}  
 1006 {Jacket, Bread, SkiPants}

*Mengikut data transaksi yang berikut:*

**Transaction ID Items**

1001 {Jaket, But}  
 1002 {Susu, Keju, Roti, Kasut}  
 1003 {Kain, Roti}  
 1004 {Susu, Roti, Kasut, KadUcapan, Ayam, Epal, Sup}  
 1005 {Keju, Kasut, Daging}  
 1006 {Jaket, Roti, SeluarSki}

- (i) What are the supports and confidences of the following two rules?

Rule 1: Milk  $\rightarrow$  Bread

Rule 2: Bread  $\rightarrow$  Milk

*Apakah sokongan dan keyakinan kedua-dua peraturan tersebut?*

*Peraturan 1: Susu  $\rightarrow$  Roti*

*Peraturan 2: Roti  $\rightarrow$  Susu*

(4/100)

- (ii) If the minimum support is set at 30%, how many itemsets will be found?

*Sekiranya sokongan minima diset kepada 30%, berapakah set item yang boleh dicari?*

(5/100)

- (iii) If the minimum support is set at 60%, how many itemsets will be found?

*Sekiranya sokongan minima diset kepada 60%, berapakah set item yang boleh dicari?*

(1/100)