STID3053 CONFIDENTIAL

UUM
Universiti Utara Malaysia

FINAL EXAM
FIRST SEMESTER SESSION 2011/2012

COURSE CODE / NAME : STID3053 DECISION SUPPORT SYSTEM
DATE : 7 JANUARY 2012 (SATURDAY)
TIME : 9.00 – 11.30 AM (2 ½ HOURS)
VENUE : DMS/KIA

INSTRUCTION :

1. This exam paper contains SIX (6) questions in TWELVE (12) printed pages, excluding the cover page.
2. Answer ALL QUESTIONS in the spaces provided.
3. You are NOT ALLOWED to remove the exam paper from the examination hall.

MATRIC NO : ____________________________  ____________________________
(with word) (with number)

IDENTIFICATION CARD NO. :

LECTURER : ____________________________

GROUP : [ ]  TABLE NO. : ____________________________

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SECTION A: 4 STRUCTURED QUESTIONS (84 MARKS)

1. Consider the current healthcare industry in Malaysia. An increasing number of public and private medical hospitals and clinics are evident. These companies are competing to gain and remain sustainable in the market. Their customers, mostly local as well as foreign patients who require their expertise services, are their main focus. As the industry is also facing the new trend of medical tourism, these healthcare companies understand that the only way to remain in this business is to make the right business decisions. Retaining the existing local customers and attracting new ones including international tourists are among the crucial decisions they have to embark on. Healthcare practitioners including managers, doctors, nurses and medical technicians need to improvise their services by acquiring new knowledge as well as latest medical technologies. Many large hospitals now are employing medical experts from outside the country in order to accommodate these new requirements.

Base on the above scenario, answer question a), b), c) and d):

a) The Business Pressures-Responses-Support model has three important components: business pressure that result from today's business climate, responses (action taken) by companies to counter the pressures, and computerized support that facilitates the monitoring of the environment and enhances the response actions taken by the organizations. Using the case of healthcare above, describe by drawing a diagram showing all the components in the model.

(10 marks)
b) Simon (1977) posits three types of decisions. Identify TWO (2) of the decision types that are supported by decision support systems (DSS) and give ONE (1) example each from the above healthcare case.

(6 marks)

c) Today's computerized systems possess capabilities that can facilitate decision support in a number of ways. Identify and briefly explain THREE (3) examples from the above healthcare case of these capabilities that can facilitate managerial decision making.

(6 marks)
d) Group decision support system (GDSS) facilitates the synergy of team works and enhances the decision making within the group. Based on the above healthcare scenario, suggest how GDSS can be implemented in hospital that comprise of medical experts that are geographically dispersed. You may suggest utilizing the groupware tools that are available in the market to provide support for group work.

(4 marks)

2. A major characteristics of decision support systems (DSS) and business intelligence (BI) tools is the inclusion of at least one model. Model base may contains routine and special statistical, financial, forecasting, management science, and other quantitative models that provide the analysis capabilities in a DSS.

a) DSS model management components can be divided into 4 major categories. Identify and briefly explain TWO (2) of these categories by giving examples.

(6 marks)
b) Models can be developed and implemented in a variety of programming languages and systems. Spreadsheets such as Microsoft Excel with their add-ins (example shown in picture below) is clearly the most popular end-user modeling tool.

State and briefly explain **TWO (2)** reasons why spreadsheet is so conducive and a popular modeling tool? Identify and briefly describe **TWO (2)** real life examples where spreadsheet is most appropriate as a modeling tools.

(8 marks)
c) Simulation is the appearance of reality and is one of the most commonly used to model complex DSS cases. Since DSS deals with semi-structured and unstructured situation where reality is complex, which may not be easily represented by other models.

List and briefly explain THREE (3) advantages and THREE (3) disadvantages of using simulation as a modeling approach.

(6 marks)

Identify TWO (2) examples of situation where simulation is the most appropriate modeling tools to represent complex reality cases and briefly explain the reason why it is appropriate.

(6 marks)
3. The following picture illustrates a business intelligence dashboard used by the Chief Executive Officer (CEO) of an organization.

![Business Intelligence Dashboard](image)

Based on the dashboard scenario above, answer the following questions:

a) In your own words, describe what is dashboard? (2 marks)

b) In your opinion, where does the information visualized on the dashboard are extracted from? (2 marks)
c) What is the purpose of having a dashboard in an organization? (2 marks)

d) How do you think the other executives in the company would benefit from the above knowledge provided by the dashboard? (2 marks)

e) State FOUR (4) initiatives that can be used by organizations to encourage knowledge sharing among employees. (4 marks)
4. Business Intelligence (BI) is becoming the strategic management tools in today's competitive environment. Diagram below shows the major components of BI in most generic business environments.

Based on the above BI diagram, please answer the following questions:

a) Briefly define data warehouse? (2 marks)

b) State THREE (3) differences between data warehouse and operational database system. (6 marks)
c) Briefly define Extraction, Transformation and Load (ETL) tool by explaining the processes that take place in BI environment. (6 marks)

d) Define data mining and give ONE (1) example of real data mining applications. (3 marks)

e) Briefly explain predictive analysis by giving ONE (1) real life application. (3 marks)
The measurement and assessment of health status in communities throughout the world is a massive information technology challenge. Comprehensive Assessment for Tracking Community
Health (CATCH) provides systematic methods for community level assessment that is invaluable for resource allocation and health care policy formulation. CATCH is based on health status indicators from multiple data sources, using an innovative comparative framework and weighted evaluation process to produce a rank-ordered list of critical community health care challenges. The community-level focus is intended to empower local decision makers by providing a clear methodology for organizing and interpreting relevant health care data. Extensive field experience with the CATCH methods, in combination with expertise in data warehousing technology, has led to an innovative application of information technology in the health care arena.

The data warehouse allows a core set of reports to be produced at a reasonable cost for community use. In addition, online analytic processing (OLAP) functionality can be used to gain a deeper understanding of specific health care issues. The data warehouse in conjunction with Web-enabled dissemination methods allows the information to be presented in a variety of formats and to be distributed more widely in the decision-making community.

Base on the CATCH case, please answer the following questions:

1) Propose THREE (3) decision making requirements for the case. These requirements would enable the local decision makers to act on behave on the communities.

(6 marks)
2) Prepare reporting formats (visualization) from your proposed requirement in 1) of the CATCH data warehouse. You may use charts to visualize your idea.

(10 marks)

End of questions.