ISLAMIC UNIVERSITY OF TECHNOLOGY (IUT)
ORGANISATION OF ISLAMIC COOPERATION (OIC)

DEPARTMENT OF BUSINESS AND TECHNOLOGY MANAGEMENT

Semester Final Examination   Summer Semester, A. Y. 2021-2022
Course No.   : BTM 4869   Time   : 3 hours
Course Title : Decision Support Systems (DSS)   Full Marks   : 150

Answer **all 6 (six)** questions. All questions carry equal marks. Marks of each question and corresponding CO and PO are written in the right margin with brackets.

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1. a) What are the primary components of a business intelligence (BI) system, and how do they work together to facilitate the collection, analysis, and sharing of data within an organization?   **8**   (CO1) (PO1)

    b) How do the Gorry and Scott-Morton Classical Framework provide a conceptual model for understanding the different decision-making situations faced by organizations and guide the selection of appropriate decision-making methods?   **8**   (CO1) (PO1)

    c) Define work system. What are the nine key elements that comprise a work system, and how do these elements interact to influence the overall performance and effectiveness of a work system.   **9**   (CO1) (PO1)

2. a) How can DSS and BI technologies and tools assist in decision-making throughout the different phases of the decision-making process? Provide specific examples of their usage in each phase.   **8**   (CO1) (PO1)

    b) Provide a comprehensive and detailed explanation of the four phases of Herbert Simon's decision-making process, including the key tasks and activities involved in each phase. How these phases interact to support effective decision-making for individuals and organizations?   **8**   (CO2) (PO2)

    c) What are the categories of models based on their degree of abstraction, and how do they simplify or represent reality? Explain each category.   **9**   (CO3) (PO5)

3. a) What are the six frameworks that Holsapple and Whinston classified DSS into, and what are the main characteristics and functionalities of each framework?   **8**   (CO1) (PO1)

    b) How do staff analysts act as intermediaries between managers and MSS in decision-making processes? What are the different types of intermediaries available to managers in a DSS, and how do they support decision-making without the need for the manager to use the keyboard?   **8**   (CO3) (PO5)

    c) What are the main subsystems that compose a DSS application and how do they support decision-making? Provide an explanation of each subsystem and its roles and functions.   **9**   (CO2) (PO2)

4. a) Simulation involves setting up a model of a real system and conducting repetitive experiments on it. List and describe the steps in the methodology of simulation. **8 (CO2) (PO2)**

    b) What are the common search methods used in problem-solving during the choice phase? Enumerate the characteristics and functions of each method, including analytical techniques, algorithms, blind searching, and heuristic searching. **8 (CO3) (PO5)**

    c) How do sensitivity analysis, what-if analysis, and goal seeking help in identifying the critical factors and making informed decisions in decision-making scenarios? **9 (CO2) (PO2)**

5. a) Describe the major similarities and differences between the Inmon and Kimball data warehouse development approaches. **8 (CO1) (PO1)**

    b) Describe the major components that typically make up a data warehouse, including their purpose and how they are organized. Explain how these components support the process of data analysis and decision-making? **8 (CO2) (PO2)**

    c) What are the key issues that should be carefully considered when developing a successful data warehouse? How can addressing these issues contribute to the effectiveness and usefulness of the data warehouse for data analysis and decision-making? **9 (CO3) (PO5)**

6. a) What are some of the noteworthy technologies utilized for processing and analyzing big data? **6 (CO2) (PO2)**

    b) How does the group decision-making process function within a decision support system? What role does it play in facilitating effective decision-making? **6 (CO1) (PO1)**

    c) Provide a comprehensive explanation regarding the constituent elements of an expert system and elucidate the underlying mechanisms by which such systems operate. **6 (CO2) (PO2)**

    d) Provide a detailed comparison of the approaches to measuring business performance through dashboards and scorecards, highlighting the key distinctions between these two methods. **7 (CO2) (PO2)**