



MACHAKOS UNIVERSITY

University Examinations 2021/2022

EXAMINATION FOR BCOM

BMS 400: MANAGEMENT INFORMATION SYSTEMS

DATE: DECEMBER 2021

TIME: 2 HOURS

Instructions: Answer Question ONE and other TWO Questions

Question 1 (30 Marks) [Compulsory]

- a) Describe three classes of information that can be valued by an organization (3 marks)
- ✓ . *Classification by characteristics-action vs nonaction, recurring vs non recurring, internal vs external*
 - ✓ *Classification by application- planning, control, knowledge*
 - ✓ *Classification by management- supervisor, middle, top level*
- b) Decision making has been enhanced largely through the use of management information systems in modern organization where they provide high value information that managers use effectively to reach strategic and day to day decisions. What are the levels of decision making that make these systems so popular to their users? (4 marks)
- ✓ **Strategic Decision Making**-Strategic decision making determines the objectives, resources and policies of the organization.
 - ✓ **Management Control**-Decision making for management control is principally concerned with how efficiently and effectively resources are utilized and how all operational units are performing.
 - ✓ **Knowledge Level Decision Making** - This level deals with evaluating new ideas for products and services; ways to communicate new knowledge; and ways to distribute information throughout the organization.
 - ✓ **Operational Control** -Decision making for operational control determines how to carry out specific tasks set forth by strategic and middle management decision makers.
- c) Discuss the major components of an information system (4 marks)
- ✓ . *Student to discuss on input, processing, and output, software, human resource, telecommunications components*

- d) From time to time organizations will be required to replace their existing systems with new systems as part of their effort to remain competitive, because the world around them is rapidly changing and innovation is key if they have to maintain a competitive edge.

Describe the benefits that could lead to the replacement of old systems (5 marks)

Student to explain benefits of mis

- ✓ *It facilitates planning*
- ✓ *It Minimizes information overload*
- ✓ *MIS Encourages Decentralization*
- ✓ *It brings Coordination*
- ✓ *It makes control easier: MIS serves as a link between managerial planning and control.*
- ✓ *MIS assembles, process, stores, Retrieves, evaluates and Disseminates the information.*
- ✓ *Companies are able to identify their strengths and weaknesses due to the presence of revenue reports, employees' performance record*
- ✓ *Giving an overall picture of the company.*
- ✓ *The availability of customer data and feedback can help the company to align its business processes according to the needs of its customers.*
- ✓ *MIS can help a company gain a competitive advantage.*

- e) Information retrieval is the activity of obtaining information resources relevant to an information need from a collection of information resources. Describe the mathematical based models used to retrieve information in a university library website (5 marks)

*Any 5 models*1 mk*

. 1. First dimension: mathematical basis

- ***Set-theoretic models*** represent documents as sets of words or phrases. Similarities are usually derived from set-theoretic operations on those sets. Common models are:
 - *Standard Boolean model, Extended Boolean model, Fuzzy retrieval*
- ***Algebraic models*** represent documents and queries usually as vectors, matrices, or tuples. The similarity of the query vector and document vector is represented as a scalar value.
 - *Vector space model, Generalized vector space model, (Enhanced) Topic-based Vector Space Model., Extended Boolean model, Latent semantic indexing*
- ***Probabilistic models*** treat the process of document retrieval as a probabilistic inference. Include: *Binary Independence Model, Probabilistic relevance model, Uncertain inference, Language models, Divergence-from-randomness model, Latent Dirichlet allocation*
- ***Feature-based retrieval models*** view documents as vectors of values of feature functions (or just features) and seek the best way to combine these features into a single relevance score, typically by learning to rank methods. Feature functions are arbitrary functions of

document and query, and as such can easily incorporate almost any other retrieval model as just a yet another feature.

2. Second dimension: properties of the model

- ***Models without term-interdependencies*** treat different terms/words as independent. This fact is usually represented in vector space models by the orthogonality assumption of term vectors or in probabilistic models by an independency assumption for term variables.
- ***Models with immanent term interdependencies*** allow a representation of interdependencies between terms. However the degree of the interdependency between two terms is defined by the model itself. It is usually directly or indirectly derived from the co-occurrence of those terms in the whole set of documents.
- ***Models with transcendent term interdependencies*** allow a representation of interdependencies between terms, but they do not allege how the interdependency between two terms is defined. They relay an external source for the degree of interdependency between two terms.

f) The primary goal of Customer Relationship Management is to improve its long term growth and profitably through a better understanding of customer behaviour. Briefly explain its services (5 marks)

- ✓ *To keep track of all present and future customers.*
- ✓ *To identify and target the best customers.*
- ✓ *To let the customers know about the existing as well as the new products and services.*
- ✓ *To provide real-time and personalized services based on the needs and habits of the existing customers.*
- ✓ *To provide superior service and consistent customer experience.*
- ✓ *To implement a feedback system.*

g) Business intelligence systems are a special kind of information systems and should not be confused with Management Information Systems. Explain (4 marks)

- ✓ *. BIS help managers with non-routine decisions that are unique, rapidly changing, and not easily specified in advance.*
- ✓ *BIS are more analytical than MIS, using a variety of models to analyze internal and external data or condense large amounts of data for analysis.*

Question 2 (20 Marks)

E-business has provided the means for integrating systems across the organization as a result; vendors have created several technologies that facilitate integration.

a) Demonstrate your understanding of Enterprise Resource Planning Systems (6 marks)

- ✓ *ERP is an integrated, real-time, cross-functional enterprise application, an enterprise-wide transaction framework that supports all the internal business processes of a company.*
- ✓ *It supports all core business processes such as sales order processing, inventory management and control, production and distribution planning, and finance.*
- ✓ *Features*



- ✓
- ✓ *ERP is very helpful in the following areas –*
- ✓ *Business integration and automated data update*
- ✓ *Linkage between all core business processes and easy flow of integration*
- ✓ *Flexibility in business operations and more agility to the company*
- ✓ *Better analysis and planning capabilities*
- ✓ *Critical decision-making*
- ✓ *Competitive advantage*
- ✓ *Use of latest technologies*

b) Highlight the benefits of ERP systems

(8 marks)

- ✓ *Reduction of lead time*
- ✓ *Reduction of cycle time*
- ✓ *Better customer satisfaction*
- ✓ *Increased flexibility, quality, and efficiency*
- ✓ *Improved information accuracy and decision making capability*
- ✓ *Onetime shipment*
- ✓ *Improved resource utilization*
- ✓ *Improve supplier performance*
- ✓ *Reduced quality costs*
- ✓ *Quick decision-making*
- ✓ *Forecasting and optimization*
- ✓ *Better transparency*

- c) Describe the skills of an information system manager (6 marks)

✓ *Open to students to give skills*

Question 3 (20 Marks)

- a) Information must flow in different directions to support the different information needs of management. Construct a hierarchy to show the level of management having different information needs. (8 marks)

Explanation of management level and its information-3points*2mk

Information needs- 2 mks

There are three management levels in most organizations:

1. Supervisors

- A. Manage and monitor the employees or workers.*
- B. Responsible for operational matters (day-to-day operations).*
- C. Example: production supervisor monitors materials needed to build a product.*

2. Middle Management

- A. Deal with control planning, tactical planning, and decision-making.*
- B. Implement long-term goals of the organization.*
- C. Example: regional sales manager sets sales goals for sales in several states.*

3. Top Management

- A. Concerned with long-range planning (strategic planning)*
- B. Need information to help them plan future growth and direction of the organization.*

Each level of management has different information needs.

1. Strategic Needs of Top-level managers

- A. Information that reveals overall condition of the business in capsule form.*
- B. Information from all departments below and from outside the organization.*
- C. Information to plan for long-range events.*
- D. Example: planning for new facilities*

2. Tactical Needs of Middle-level managers

- A. Summarized information (weekly or monthly reports).*
- B. Information both horizontal and vertical across functional lines within the organization.*
- C. Historical, internal information to develop budgets and evaluate performances.*
- D. Example: developing production goals, concurring with top-level managers and supervisors*

3. *Operational Needs of Supervisors*

- A. *Detailed current day-to-day information.*
- B. *Information flow is primarily vertical.*
- C. *Communicate mainly with middle managers and workers beneath them.*
- D. *Day-to-day internal information to keep operations running smoothly.*
- E. *Example: monitoring current supplies, current inventory, and production output.*

- b) Institutional factors are internal to the organization and they influence the adoption and design of information systems. Discuss why information systems are key components in modern organizations (4 marks)

- ✓ *Information Storage and Analysis/Record keeping.*
- ✓ *Assist with Making Decisions*
- ✓ *Assist with Business Processes/operations*
- ✓ *Communication*

- c) Executive support systems are intended to be used by the senior managers directly to provide support to non-programmed decisions in strategic management. Describe the advantages for these systems (8 marks)

- ✓ *4 points*2*
- ✓ *Easy for upper-level executives to use, extensive computer experience is not required in operations*
- ✓ *Provides strong drill-down capabilities to better analyze the given information.*
- ✓ *Information that is provided is better understood*
- ✓ *EIS provides timely delivery of information. Management can make decisions promptly.*
- ✓ *Improves tracking information*
- ✓ *Offers efficiency to decision makers*

Question 4 (20 Marks)

- a) With the advancement in technology and continued use of information systems, ethical issues are bound to arise. A manager of an IT firm is in an ethical dilemma. Elaborate to him the best approach to analyze the situation (8 marks)

4points*2 mks

- ✓ *Privacy*
- ✓ *Intellectual Property Right*
- ✓ *Legal Jurisdiction*

- ✓ *Content Regulation*
 - ✓ *Information rights and obligations*
 - ✓ *Property rights and obligations*
 - ✓ *Accountability and control*
 - ✓ *System quality*
 - ✓ *Quality of life*
- b) The aim of information system security is to protect both information and information systems from harm or unauthorized access. Enumerate the core principles of information security (4 marks)
- ✓ *Confidentiality: Confidentiality is the term used to prevent the disclosure of information to unauthorized individuals or systems.*
 - ✓ *Integrity: that data cannot be modified undetectably. This is not the same thing as referential integrity in databases, although it can be viewed as a special case of Consistency as understood in the classic ACID model of transaction processing.*
 - ✓ *Availability: the information must be available when it is needed.*
 - ✓ *Authenticity: In computing, e-Business and information security it is necessary to ensure that the data, transactions, communications or documents (electronic or physical) are genuine.*
 - ✓ *Non-repudiation: In law, non-repudiation implies one's intention to fulfill their obligations to a contract.*
- c) Virus attacks in computers have become rampant as more viruses are created and infected to computers without the awareness of users. Elaborate on the various security risks that organization are vulnerable to (8 marks)
- ✓ *Open to students to give risks 4points*2 mks*

Question 5 (20 Marks)

Corporate scandals have become so rampant in recent times and as result organizations have been forced to implement strong internal controls into their transaction based systems. The Kenyan government for instance has had to put up with the runaway corruption scandals in government ministries.

- a) Elaborate on the features of transaction based systems (5 marks)
- ✓ *A TPS supports different tasks by imposing a set of rules and guidelines that specify how to record, process, and store a given transaction.*
 - ✓ *A TPS is the data life-line for a company because it is the source of data for other information systems*

- ✓ *A TPS is also the main link between the organization and external entities, such as customers suppliers, distributors, and regulatory agencies*
 - ✓ *TPS exist for the various functional areas in an organization, such as finance, accounting, manufacturing, production, human resources, marketing quality control, engineering, research and development.*
 - ✓ *A TPS records internal and external transactions for a company*
- b) Describe the steps of processing the transaction in the government using a TPS (7 marks)

The seven steps in processing a transaction are:

- *Data entry*
 - *Data Capture*
 - *Data validation*
 - *Processing and revalidation*
 - *Storage*
 - *Output generation*
 - *Query support*
- c) Enumerate the advantages of having accounting information systems in place to the ministry of finance in an attempt to help them arrest the matter (8 marks)

Any 4points*2

- ✓ *They help in performance analysis. They help the top manaes of an organization o monitor performance. They do this by evaluating their profits and losses. This enables them to make logical future decisions.*
- ✓ *Investment analysis. Accounting information systems allows you as an investor to examine the potential risk of investing in a particular company or organization.*
- ✓ *To determine overall profitability*
- ✓ *Performance analysis. An accounting information system enables you as an accountant to break down the financial statements and compare them with the competitors in the industry.*