



# MACHAKOS UNIVERSITY

University Examinations for 2017/2018

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR OF  
SCIENCE IN COMMERCE

BMS 400: MANAGEMENT INFORMATION SYSTEM

DATE: 6/12/2017

TIME: 2.00-4.00 PM

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## INSTRUCTIONS

Answer Question ONE and any other TWO Questions

### QUESTION ONE (30 MARKS)

- a) Define:
  - i. Information system. (2 marks)
  - ii. Using a diagram explain the interaction between all components of an information system. (7 marks)
- b) Different levels of management in organizations use different types of Information System. Briefly outline **FIVE** types of systems used in levels of management. (5 marks)
- c) Giving examples discuss at least **FOUR** components of information technology infrastructure found in an organization. (8 marks)
- d) Information Systems have posed varied ethical, social, political, economic and individual problems. Discuss **FOUR** problems associated with Information Systems. (8 marks)

## **QUESTION TWO (20 MARKS)**

### ***CASE STUDY: UPS COMPETES GLOBALLY WITH INFORMATION TECHNOLOGY***

United Parcel Service (UPS) started out in 1907 in a closet-sized basement office. Jim Casey and Claude Ryan—two teenagers from Seattle with two bicycles and one phone—promised the “best service and lowest rates.” UPS has used this formula successfully for more than 100 years to become the world’s largest ground and air package delivery company.

The firm has been able to maintain leadership in small-package delivery services despite stiff competition from FedEx and Airborne Express by investing heavily in advanced information technology. UPS spends more than \$1 billion each year to maintain a high level of customer service while keeping costs low and streamlining its overall operations.

It all starts with the scannable bar-coded label attached to a package, which contains detailed information about the sender, the destination, and when the package should arrive. Customers can download and print their own labels using special software provided by UPS or by accessing the UPS Web site. Before the package is even picked up, information from the “smart” label is transmitted to one of UPS’s computer centers in Mahwah, New Jersey, or Alpharetta, Georgia, and sent to the distribution center nearest its final destination. Dispatchers at this center download the label data and use special software to create the most efficient delivery route for each driver that considers traffic, weather conditions, and the location of each stop.

UPS estimates its delivery trucks save 28 million miles and burn 3 million fewer gallons of fuel each year as a result of using this technology. To further increase cost savings and safety, drivers are trained to use “340 Methods” developed by industrial engineers to optimize the performance of every task from lifting and loading boxes to selecting a package from a shelf in the truck.

The first thing a UPS driver picks up each day is a handheld computer called a Delivery Information Acquisition Device (DIAD), which can access one of the wireless networks cell phones rely on. As soon as the driver logs on, his or her day’s route is downloaded onto the handheld. The DIAD also automatically captures customers’ signatures along with pickup and delivery information. Package tracking information is then transmitted to UPS’s computer network for storage and processing. From there, the information can be accessed worldwide to provide proof of delivery to customers or to respond to customer queries. It usually takes less than 60 seconds from the time a driver presses “complete” on a DIAD for the new information to be available on the Web.

Through its automated package tracking system, UPS can monitor and even re-route packages throughout the delivery process. At various points along the route from sender to receiver, bar code devices scan shipping information on the package label and feed data about the progress of the package into the central computer. Customer service representatives are able to check the status of any package from desktop computers linked to the central computers and respond immediately to inquiries from customers. UPS customers can also access this information from the company’s Web site using their own computers or mobile phones. Anyone with a package to ship can access the UPS Web site to check delivery routes, calculate shipping rates, determine time in transit, print labels, schedule a pickup, and track packages. The data collected at the UPS Web site are transmitted to the UPS central computer and then back to the customer after processing. UPS also provides tools that enable customers, such as Cisco Systems, to embed UPS functions, such as tracking and cost calculations, into their own Web sites so that they can track shipments without visiting the UPS site.

In June 2009, UPS launched a new Web-based Post-Sales Order Management System (OMS) that manages global service orders and inventory for critical parts fulfillment. The system enables high-tech electronics, aerospace, medical equipment, and other companies anywhere in the world that ship critical parts to quickly assess their critical parts inventory, determine the most optimal routing strategy to meet customer needs, place orders online, and track parts from the warehouse to the end user.

An automated e-mail or fax feature keeps customers informed of each shipping milestone and can provide notification of any changes to flight schedules for commercial airlines carrying their parts. Once orders are complete, companies can print documents such as labels and bills of lading in multiple languages. UPS is now leveraging its decades of expertise managing its own global delivery network to manage logistics and supply chain activities for other companies. It created a UPS Supply Chain Solutions division that provides a complete bundle of standardized services to subscribing companies at a fraction of what it would cost to build their own systems and infrastructure. These services include supply chain design and management, freight forwarding, customs brokerage, mail services, multimodal transportation, and financial services, in addition to logistics services.

Servalite, an East Moline, Illinois, manufacturer of fasteners, sells 40,000 different products to hardware stores and larger home improvement stores. The company had used multiple warehouses to provide two-day delivery nationwide. UPS created a new logistics plan for the company that helped it reduce freight time in transit and consolidate inventory. Thanks to these improvements, Servalite has been able to keep its two-day delivery guarantee while lowering warehousing and inventory costs.

### Case Question

- a) What are the inputs, processing, and outputs of UPS's package tracking system? (4 marks)
- b) What technologies are used by UPS? (4 marks)
- c) From the Case Study identify and explain at least **THREE** strategic business objectives addressed by UPS information System. (6 marks)
- d) Explain **THREE** problems being solved by UPSs Information System. (6 marks)

### QUESTION THREE (20 MARKS)

- a) Using a diagram discuss **FIVE** Potter's competitive forces. (10 marks)
- b) Businesses use information systems to achieve various strategic objectives. Giving examples provide a detailed explanation of **FIVE** strategic goals that can be achieved using information systems in an organization. (10 marks)

#### **QUESTION FOUR (20 MARKS)**

- a) Information Systems can be used to counter competitive forces in business. Giving relevant examples explain FIVE strategies used to address competitive forces using Information Systems. (10 marks)
- b) Using a diagram explain the phases you would go through when developing an Information System. (10 marks)

#### **QUESTION FIVE (20 MARKS)**

- a) Assuming you are among a team of experts tasked with acquiring an Information System in your organization. After doing a quick investigation about the organization's capability, you settle for in-house development and present the idea to the top management. Explain **FIVE** reasons why you choose this method. (10 marks)
- b) Explain FIVE ethical principles you would consider before making a decision. (10 marks)