



# **MACHAKOS UNIVERSITY**

**University Examinations for 2017/2018**

**SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY**

**THIRD YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR OF SCIENCE  
IN COMPUTER SCIENCE**

**SCO 311: E- COMMERCE**

**DATE: 19/12/2017**

**TIME: 8.30-10.30 AM**

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**INSTRUCTIONS: Answer Question ONE and any other TWO Questions**

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## **QUESTION ONE (30 MARKS)**

### **How the state of Kenya sells surplus equipment**

For many years, the Kenyan Department of Transportation (DOT) used a traditional offline auction process. In a radio address on December 6, 2013, Governor Kidero announced that the state would begin holding online auctions to sell its surplus heavy equipment. The old, live in-person auction system generated about \$5 million a year. Using the internet, the DOT expected at least a 20 percent increase in revenue.

The state of Kenya conducted its initial online sale of surplus DOT items in October 2014. The sale consisted of 77 items (including 37 dump trucks). Onsite inspection was available twice during the 2-week bidding period. The online sale allowed the Kenyan state to obtain an average price increase of 20 percent, while reducing labor costs related to holding a traditional on-site sale. On high-value specialty items (i.e., a bridge inspection crane and satellite van), results exceeded the estimated sale prices by over 200 percent.

The auction was conducted by Asset-auctions.com. The results of the auction are shown below:

Total sales: \$635,416.03

Half of the bidding activity occurred in the final 2days

Every lot received multiple bids

Overtime bidding occurred in 39 lots Over

200 bidders registered for the sale

174 bidders from 19 counties made about 1,500 bids in 5 days

47 different buyers participated.

The Kenyan state now sells surplus equipment and properties using both Asset-auctions.com and eBay.

- a) Identify the e-Business model that has been adopted by DOT (2 marks)
- b) What drivers led DOT to go online? (2 marks)
- c) Why did the state generate 20 percent more in revenues with the online auction (2 marks)
- d) Unlike the traditional offline auction the online auction exposes the customers to some potential threats, explain these threats. (6 marks)
- e) Explain the different on-line advertising methods that could be used by DOT to popularize their website in order to increase their revenue. (5 marks)
- f) Identify the different ways in which DOTs customers could pay for their purchases (4 marks)
- g) Why did DOT need an intermediary to conduct the auction? (3 marks)
- h) How would DOT match its products to individuals and their preferences? (6 marks)

## QUESTION TWO (20 MARKS)

- a) Using a well-labeled diagram, discuss the 3-tier architecture for developing e-commerce infrastructure. (10 marks)
- b) Explain each of the following security issues: (10 marks)
  - i. Authorization
  - ii. Authentication
  - iii. Auditing
  - iv. Nonrepudiation
  - v. Integrity

### **QUESTION THREE (20 MARKS)**

- a) Define the term digital economy. (2 marks)
  - i) Explain the term electronic marketplace and outline its main components. (9 marks)
  - ii) Explain the three main functions of e-markets. (3 marks)
- b) Describe each of the following standards for e-payments:
  - i. Secure socket layer (SSL)
  - ii. Transport Layer Security (TLS)
  - iii. Secure Electronic Transaction (SET) (6 marks)

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

- a) Describe the factors that are critical for an e-payment method to achieve critical mass. (10 marks)
- b) What is an E-Check? (2 marks)
- c) Explain why Mpesa has become a very common form of e-payment in Kenya? (8 marks)

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

- a) Describe the limitations of online market research. (8 marks)
- b) Explain the issue of trust in EC and how to increase it. (2 marks)
- c) Explain any FIVE revenue models for EC (10 marks)