



**UNIVERSITY EXAMINATIONS: 2013/2014**  
**EXAMINATION FOR THE MASTER OF SCIENCE IN INFORMATION**  
**SYSTEMS MANAGEMENT**  
**MISM 5202 WIRELESS TECHNOLOGIES**  
**DATE: AUGUST, 2014** **TIME: 2 HOURS**

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**INSTRUCTIONS: Answer Question One and Any Other Two Questions**

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**QUESTION ONE: [20 Marks]**

- (a) Explain the following terms:
- (i) Cell Area.
  - (ii) Satellite-look angles.
  - (iii) Mobile device
  - (iv) Wi-Fi
  - (v) Authentication
  - (vi) Equalization (6 Marks)
- (b) Outline any four differences between Wi-Fi and WiMax wireless networks technologies. (4 Marks)
- (c) With respect to a Bluetooth network, describe the following:
- (i) Master node.
  - (ii) Inquiry mode.
  - (iii) Adhoc architecture. (6 Marks)
- (d) Differentiate between table driven and on-demand source initiated routing protocols. (2 Marks)
- (e) Distinguish between a synchronous satellite and a geostationary satellite. (2 Marks)

## QUESTION TWO (15 MARKS)

- (a) Outline any four applications of satellite networks. (4 Marks)
- (b) Compare and contrast between the first generation of the mobile communication networks and their predecessor. (4 Marks)
- (c) With respect to a mobile system channel, state the difference between uplink and downlink. (2 Marks)
- (d) Discuss the differences between the IEEE 802.11a and IEEE 802.11b standards. (5 marks)

## QUESTION THREE (15 MARKS)

- (a) In cellular communication networks, a geographical region is divided into cells. What is the importance of cells? (1 Mark)
- (b) Optimum Cells in a cellular network have a hexagon structure. Why? (2 Marks)
- (c) Outline the differences between GPRS and GPS services of a wireless network. (6 Marks)
- (d) Describe any four features and any two function of a mobile station. (6 Marks)

## QUESTION FOUR (15 MARKS)

- (a) Distinguish between Fixed and Dynamic Channel assignment. (2 Marks)
- (b) Draw a well labeled cell cluster of size seven repeated three times and explain the following terms:
  - (i) Cell Cluster.
  - (ii) Co-channel cells
  - (iii) Co-channel Interference Tier
  - (iv) Cell Sectoring (5 Marks)
- (c) Explain the term dwell time in relation to mobile system handover (2 Marks)
- (d) State four factors that determine the length of dwell time. (2 Marks)
- (e) Outline four sources of cellular channel interference. (4 Marks)