

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY**

**OF**

**AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2015/2016**

**YEAR 2 SEMESTER II EXAMINATION FOR THE BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY/BACHELOR OF BUSINESS INFORMATION TECHNOLOGY**

**BIT 2223: MOBILE COMPUTING**

**DATE: August 2016 TIME: 2 HOURS**

**Instructions: Answer Question One (Compulsory) and Any Other Two Questions**

**QUESTION ONE (30 MARKS)**

1. Mobile computing is technology that allows transmission of data, voice and video via a computer or any other wireless enabled device without having to be connected to a fixed physical link. Briefly explain two advantages and four challenges of mobile computing. (6marks)
2. Briefly explain how wireless router performs network address translation (NAT) in dynamic routing (6marks)
3. Differentiate between the following terms used in mobile computing (6marks)
4. 2G and 3G technologies
5. Wi-fi and Wimax
6. Synchronous and Asynchronous packet Data transmission
7. Outline and discuss the connection state of a Bluetooth device can be in. Also specify which state leads power consumption (8marks)
8. How does GSM use both FDMA and TDMA techniques? (6marks)
9. Explain any four advantages of Voip (4marks)

**QUESTION TWO (20 MARKS)**

1. Diagrammatically represent GPRS architecture and describe briefly the role of each component in your architectural diagram (10marks)
2. Discuss five application of wireless and mobile technology (10marks)

**QUESTION THREE (20 MARKS)**

1. What is DHCP? Explain how dynamic IP configuration is performed by DHCP (10marks)
2. Choosing an administrative password is one of the easiest and least expensive ways to guard such a wireless network against unauthorized access. Unfortunately, too many people prefer to use an easy to remember password. Discuss four wireless network security techniques. (10marks)

**QUESTION FOUR (20 MARKS)**

1. Differentiate between the following terms used in mobile computing. Use appropriate examples (12marks)
2. IPV4 and IPV6
3. Dynamic and static configuration
4. IEEE2.11g and IEEE802.11n
5. Explain the Bluetooth stack, listing the functions of each protocol, why only 7 active device at a time can communicate to a master in Bluetooth. (8marks)

**QUESTION FIVE (20 MARKS)**

1. With an aid of a clear labelled diagram describe a GSM system Architecture (8marks)
2. What is mobile IP? Explain registration, Agent discovery, Tunneling and reverse tunneling in mobile IP (4marks)
3. Determine the network, broadcast, number of host and host address for the first and the last Host 10.10.198.200/2a (8marks)