



# PIONEER INTERNATIONAL UNIVERSITY

Powered by Intellect, Driven by Values.

## UNIVERSITY EXAMINATIONS

**ACADEMIC YEAR:** 2021/2022  
COMMUNICATION

**UNIT NAME:** BROADBAND AND MOBILE WIRELESS

**SEMESTER:** SEPT – DEC 2021

**UNIT CODE:** BSNA 4230

**DATE:** DEC 2021

**MAIN EXAM**

**TIME:** 2 HOURS

**INSTRUCTIONS:** Answer question one (30 marks) and any other two

### QUESTION ONE (COMPULSORY 30 MARKS)

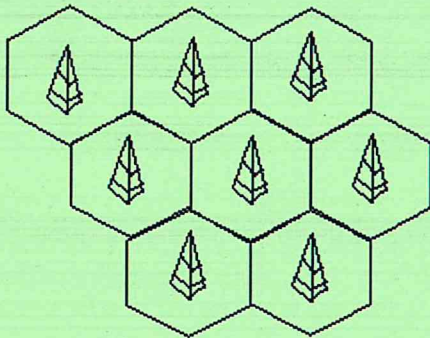
- a) Define the following terms in relation to Broadband and mobile wireless communication [5 Marks]
- Mobile Station (MS)
  - Base Station (BS)
  - Subscriber Identity Module (SIM)
  - Roamer
  - Mobility
- b) Calculate the frequencies per cell on an average Advanced Mobile Phone Services (AMPS) when  $K = 395$  and  $N = 7$ . [5 Marks]
- c) Explain the following division multiple-access [6 Marks]
- Frequency division multiple-access (FDMA)
  - Time division multiple-access (TDMA)
  - Code division multiple-access (CDMA)
- d) List four Characteristics of Wireless Channel [4 Marks]
- e) DISCUSS THE Wireless transmissions propagate in three modes [6 Marks]
- f) A Safaricom mobile subscriber travelled to Uganda for a seminar with his mobile phone. Explain why he didn't experience call drop from Nairobi to Kampala [5 marks]

## QUESTION TWO

- a) Using a diagram Describe Comparison between OSI and TCP/IP Suite [10 Marks]
- b) Explain at least five Features of Cellular Systems [5 Marks]
- c) Explain the Features of Cellular Generation from 1G to 5G [5 Marks]

## QUESTION THREE

- a) Discuss the similarities between wireless networks and fixed networks [6Marks]
- b) With aid of a diagram describe the wireless application protocol reference model [8 Marks]
- c) Explain merits of having coverage area of cellular networks [6 Marks]



d)

## QUESTION FOUR

- a) Traditionally, the transport layer was represented in the TCP/IP suite by two protocols ,explain [4 Marks]
- b) Describe IEEE 802.11 Standard in mobile wireless communication [4 Marks]
- c) Media access method such as CSMA/CD has been effective in fixed networks, however it has application poses several challenges in wireless networks. Explain any three main challenges of its implementation in wireless networks [6 Marks]
- d) Explain the The WAP Model mobile wireless communication [6 Marks]