NATIONAL OPEN UNIVERSITY OF NIGERIA
FACULTY OF SCIENCE
CIT 758: WIRELESS COMMUNICATION II

Instruction: *Attempt any five questions, each question carries 14 marks* **Time: 3** hours

1(a) Describe and illustrate the concept of frequency reuse (4 marks)

1(b) Illustrate the application of frequency reuse in GSM cellular network (4 marks)

1(c) Enumerate and explain different subsystems and components of a cellular system ***(6 marks)***

2(a) Explain free space propagation model and EIRP (4 marks)

2(b) Define EIRP (4 marks)

2(c) Discuss the significance of link budget (6 marks)

3(a) Diversity is a significant scheme in telecommunications, discuss this scheme briefly (4 marks)

3(b) Explain four types of diversity scheme in telecommunications (***6 marks)***

3(c) List four different types of error detection (4 marks)

4(a) What causes 'fading' in a radio channel and how does it affect digital transmissions? (6 marks)

4(b) Explain the difference between 'flat' fading and 'frequency-selective' fading and state what is meant by the 'coherence bandwidth' of a channel. **(4 marks)**

4(c) Discuss the Error Detection Code scheme *(4marks)*

5(a) Explain the operations of orthogonal frequency division multiplexing (6 marks)

5 (b) Explain the benefits of cyclic prefix concept (4 marks)

5(c) Mention eight examples of Wireless Communication devices ***(4 marks)***

6(a) Explain the objectives of the following modulation techniques and list appropriate examples (6 marks)

6(b) Explain the use of Cell and Cluster in telecommunications (4 marks)

6(c) Microwaves and radio waves are used to communicate with satellites. Which of these is suitable for communicating with geostationary satellites and why? (4 marks)

7(a) Explain channel assignment and describe two different types channel assignment (4 marks)

7(b) Enumerate and describe three challenges of RFID ***(6 marks)***

7(c). System capacity is the most important measure for a cellular network. Discuss four different techniques used for improving coverage and capacity in cellular systems (4 marks)