



**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)