

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

BACHELOR OF ELECTRONIC ENGINEERING (HONS) DEGREE

Final examinations
May 2013

TEE 5223

Mobile Communications

Duration of Examination 3 Hours

Instructions to candidates:

1. Answer any five questions only.
2. Each question carries equal marks.
3. Draw the diagrams clearly and explain all your steps in any solution.
4. Start the answers for the new question on a fresh page.

QUESTION 1

- a) Name the most important components of the GSM Network Subsystem (NSS) and their tasks. [16]
- b) List some specific applications for GPRS system. [4]

QUESTION 2

- a) Classify channel assignment strategies for mobile systems in details. [8]
- b) Explain handover with the aid of suitable diagrams. [12]

QUESTION 3

- a) Briefly discuss the 3G Standards and Access Technologies. [10]
- b) Explain the service requirements for wireless system design. [10]

QUESTION 4

Explain cell splitting and cell sectoring in details with the aid of diagrams. [20]

QUESTION 5

- a) What are the main differences between GSM and UMTS radio network? [14]
- b) What does 'cell breathing' mean in UMTS? [6]

QUESTION 6

- a) What are the benefits of the micro-cell zone concept? [10]
- b) Explain how the call is made on mobile networks? [10]

QUESTION 7

- a) What are the advantages of the data transmission over GPRS compared to GSM? [6]
- b) Discuss the GPRS ready state and the GPRS stand by state? [14]

QUESTION 8

- a) Give the brief comparison of S1 and X2 handover in LTE systems? [10]
- b) What is a resource block in LTE? [10]

End of the paper