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DMI-ST. EUGENE UNIVERSITY

ZAMBIA

DEGREE EXAMINATION – DECEMBER 2024

Semester: X 055CS101 MOBILE COMPUTING

Time: 3:00 Hours

Max. Marks: 100

Answer any FIVE Questions (5 x 20 = 100 Marks)

1. a) Explain the concept of mobile computing and how it differs from traditional computing. [5 Marks]
b) Describe the role of middleware and gateways in mobile computing. Provide an example of each. [8 Marks]
c) Discuss the importance of security in mobile computing. How do standards and standard bodies ensure security in wireless communication? [7 Marks]
2. a) What are multiple access procedures, and why are they important in mobile computing? [5 Marks]
b) Explain the evolution of telephony and its role in mobile computing. [8 Marks]
c) Discuss the development of an Interactive Voice Response (IVR) application using Voice XML. Provide an example. [7 Marks]
3. a) Define the role of SMS in mobile computing. [5 Marks]
b) Explain how value-added services can be provided through SMS. Provide two examples. [8 Marks]
c) Discuss how SMS bearers are accessed in mobile networks, and what limitations exist. [7 Marks]
4. a) Define CDMA and how it differs from GSM. [5 Marks]
b) Explain the concept of spread spectrum technology and its application in IS-95. [8 Marks]
c) Compare the wireless data capabilities of 3G networks with those of earlier generations.

[7 Marks]

5. a) Describe the architecture of the Android OS. **[5 Marks]**
b) What are the key design considerations when developing an application for the Android platform? **[8 Marks]**
c) Discuss the challenges of application development for Android and how these can be overcome. **[7 Marks]**
6. a) Briefly describe the architecture of the Global System for Mobile Communications (GSM). **[5 Marks]**
b) How is call routing handled in GSM, and what are the key network entities involved? **[8 Marks]**
c) Discuss the authentication and security mechanisms implemented in GSM. **[7 Marks]**
7. a) What is the fundamental purpose of SS#7 signaling in mobile networks? **[5 Marks]**
b) Explain the IN Conceptual Model and its role in mobile communication networks. **[8 Marks]**
c) Analyze the role of softswitch technology in modern mobile networks. How does it enhance call processing and signaling? **[7 Marks]**