



## UNIVERSITY EXAMINATIONS: 2023/2024

### EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN SOFTWARE DEVELOPMENT/APPLIED COMPUTING BAC 3202/BSD 3105: AMBIENT INTELLIGENCE FULLTIME/ PART TIME/DISTANCE LEARNING ORDINARY EXAMINATION

DATE: APRIL, 2024

TIME: 2 HOURS

---

**INSTRUCTIONS: Question One Is Compulsory, Choose Two Other Questions**

---

#### **QUESTION ONE (20 MARKS) Compulsory**

- a) Describe FIVE key components of ambient intelligence (5 marks)
- b) Discuss the role of sensors in ambient intelligence (3 Marks)
- c) Explain the concept of context awareness in ambient intelligence and its importance in understanding user behavior and preferences. (6 marks)
- d) Discuss the challenges in designing and deploying intelligent environments. (6 marks)

#### **QUESTION TWO (15 MARKS)**

- a) Define ubiquitous computing and its relationship to ambient intelligence. (2 marks)
- b) Discuss the principles of ubiquitous computing, such as invisibility, scalability, and adaptability. (3 marks)
- c) Explain how ubiquitous computing technologies, such as RFID, NFC, and IoT, enable seamless interaction between users and their environments. (6 marks)
- d) Provide examples of ubiquitous computing applications. (4 marks)

#### **QUESTION THREE (15 MARKS)**

- a) Discuss the role of ambient intelligence in healthcare. (4 marks)
- b) Describe how ambient intelligence technologies are used to monitor patients, support independent living for the elderly, and improve healthcare delivery. (5 marks)

- c) Analyze the benefits and challenges of implementing ambient intelligence solutions in healthcare settings. (6 marks)

**QUESTION FOUR (15 MARKS)**

- a) Discuss emerging technologies, such as edge computing, 5G networks, and edge AI, and their impact on ambient intelligence systems. (8 marks)
- b) Analyze the societal implications of widespread adoption of ambient intelligence and discuss strategies for addressing potential challenges. (7 marks)