



# REFORMED CHURCH UNIVERSITY

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## FACULTY OF EDUCATION AND SOCIAL SCIENCES

### BACHELOR OF EDUCATION HONOURS DEGREE IN INFORMATION TECHNOLOGY

ADVANCED PROGRAMMING IN EDUCATION

**HICT 220**

**Part 2 Semester 2 Examination**

**Total Marks [100]**

Date October 2024

Time: 3 Hours

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### INSTRUCTIONS

1. This paper has *six (6)* questions
2. Answer any *four (4)* questions
3. Each question carries *25 marks*
4. Start each question on a new page

### **QUESTION 1**

- a. Explain the importance of advanced programming in education and its role in enhancing learning outcomes. (12 marks)
- b. Using examples discuss the advantages of using object-oriented programming languages such as Java or Python in educational settings. (13 marks)

### **QUESTION 2**

- a. Describe the principles of object-oriented programming (OOP) and their relevance to educational programming projects. (12 marks)
- b. Using examples discuss the concept of inheritance in object-oriented programming and how it can be used to promote code reuse and extensibility. (13 marks)

### **QUESTION 3**

- a. Explain the concept of data structures and algorithms and their significance in educational programming. (12 marks)
- b. Using any language of your choice develop an array that stores 5 numbers. (13 marks)

### **QUESTION 4**

- a. Define graphical user interface (GUI) programming and discuss its importance in educational software development. (12 marks)
- b. Describe the tools and frameworks available for GUI programming in educational contexts, such as JavaFX or Tkinter. (13 marks)

### **QUESTION 5**

- a. Explain the concept of event-driven programming and its relevance to educational software development. (12 marks)
- b. Discuss the importance of integrating advanced programming concepts into educational curricula. (12 marks)

### **QUESTION 6**

- a. Define database programming and discuss its role in educational software development for managing student data and learning resources. (12 marks)
- b. Using any language of your choice develop a CRUD (Create, Read, Update, Delete) project. (13 marks)

**END OF PAPER**