



UNIVERSITY EXAMINATIONS

EXAMINATION FOR JANUARY/APRIL 2026 FOR BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

RBCS 7214: COMPUTER ARCHITECTURE

DATE _____

TIME: 2 HOURS

GENERAL INSTRUCTIONS:

Students are NOT permitted to write on the examination question paper during examination time.

This is a closed book examination. Text book/Reference books/notes are not permitted.

SPECIAL INSTRUCTIONS:

This examination paper consists Questions in Section A followed by section B.

Answer **Question 1 and any Other Two** questions.

QUESTIONS in ALL Sections should be answered in answer booklet(s).

1. PLEASE start the answer to EACH question on a NEW PAGE.
2. Keep your phone(s) switched off at the front of the examination room.
3. Keep ALL bags and caps at the front of the examination room and DO NOT refer to ANY unauthorized material during the course of the examination.
4. ALWAYS show your working.
5. Marks indicated in parenthesis i.e. () will be awarded for clear and logical answers.
6. Write your REGISTRATION No. clearly on the answer booklet(s).
7. For the Questions, write the number of the question on the answer booklet's cover page in the order you answered them.
8. DO NOT use your PHONE as a CALCULATOR.
9. YOU are ONLY ALLOWED to leave the exam room 1 hour to the end of the Exam.
10. DO NOT write on the QUESTION PAPER. Use the back of your BOOKLET for any calculations or rough work.

SECTION A (Compulsory)

Question One (30marks)

- a. Discuss with an aid of a diagram the Von Neumann Architecture and explain the functioning of its components. **(10marks)**
- b. Discuss any FIVE functions of Operating System and the TWO categories of operating system with examples. **(14marks)**
- c. List and explain any THREE types of computer system Bus architecture. **(6marks)**

SECTION B (Answer Any Two questions – Total: 30marks)

Question Two (15marks)

- a. What is Bus Arbitration? Discuss any TWO types of Bus Arbitration. **(6marks)**
- b. What is the difference between RISC and CISC architectures? **(6marks)**
- c. Explain the concept of handshaking in the context of data transfer **(3marks)**

Question Three (15 marks)

- a. List and explain the FOUR layers of computer architecture. **(8marks)**
- b. Explain any THREE types of performance metrics as used in Computer Bus architecture performance factors. **(6marks)**
- c. Define computer architecture? **(1mark)**

Question Four (15marks)

- a. Discuss the historical evolution of computer architecture, highlighting key innovations from ENIAC to multi-core. **(10marks)**
- b. Write short notes on the following as used in Computer architecture. **(5marks)**
 - i. Structural hazards
 - ii. Cache memory
 - iii. Compiler
 - iv. ROM
 - v. Superscalar processor

Question Five (15marks)

- a. Discuss the FIVE stages of Instruction Execution cycle. **(10marks)**
- b. Give the comparison with examples between hardwired control unit and micro programmed control unit **(5marks)**