



Date: 30-03-2026

**GAUHATI UNIVERSITY**  
**CENTRE FOR DISTANCE AND ONLINE EDUCATION**

**HOME ASSIGNMENT**

**Master of Science in Information Technology (M.Sc.-IT)**

**Semester - IV (Session: 2023-24 (January))**

**Guidelines for Submission:**

1. Learners who have been admitted in the Academic Session (2023-24 (January)) will write the Home Assignment.
2. Learners should write their **Roll Number, GU Registration Number, Subject, Semester, Paper Title, Paper Code** and **Name of the Study Center** clearly on the first page of the answer script in the space provided.
3. The formats of the answer scripts are available at and can be downloaded from, the GUCDOE website ([www.gucdoe.in](http://www.gucdoe.in)).
4. There will be 2 (two) compulsory questions in each paper, and each question will have options (Total Marks: 2 questions × 10 marks= 20 marks).
5. **Typed/Computerized answers will not be accepted.** Learners will write the answers neatly in their own handwriting.
6. Learners should not submit any plagiarized answers as such a practice is deemed to be unfair.
7. Learners of different Study Centers under GUCDOE will mandatorily submit the answer scripts at their respective Study Centers.
8. Learners of GUCDOE center will submit their answer scripts at GUCDOE Office.
9. **Last Date of Submission : 30<sup>th</sup> April, 2026.**

**PAPER: INF 4016 (PROGRAMMING LANGUAGES)**

**Answer the following questions**

**2 x 10 = 20**

**Q. No. 1.** Explain the importance of Programming methodology with examples.

**10**

**OR**

Explain the concept of subprogram in Imperative programming languages with examples.

**10**

**Q. No. 2.** Explain different uses of constructor and destructor in Object Oriented programming with appropriate examples.

**10**

**OR**

Write short notes on Proposition calculus and Predicate calculus.

**10**

**PAPER: INF 4046 (ARTIFICIAL INTELLIGENCE)**

**Answer the following questions**

**2 x 10 = 20**

**Q. No. 1.** Describe the Water Jug Problem and explain its significance in the field of Artificial Intelligence. Explain how the problem demonstrates the concept of state space representation in AI.

**5 + 5 = 10**

**OR**

Mention the differences between informed search and uninformed search strategies in the context of heuristic search techniques. Provide examples where each would be appropriately applied.

**5 + 5 = 10**

**Q. No. 2.** Define the term 'knowledge representation' in the context of Artificial Intelligence. Explain why it is a critical component in the development of AI systems. Provide two examples of knowledge representation methods and their applications. **3 + 3 + 4 = 10**

**OR**

What is the significance of predicate calculus in artificial intelligence and its role in knowledge representation and reasoning? Provide some examples of real life applications.

**5 + 5 = 10**

**PAPER: INF 4086 (WIRELESS COMMUNICATION AND NETWORKS)**

**Answer the following questions**

**2 x 10 = 20**

**Q. No. 1.** Explain the process of **transmitting digital data using analog signals**. Describe the need for digital-to-analog conversion. **5 + 5 = 10**

**OR**

What is Cognitive radio? Explain its architecture.

**5 + 5 = 10**

**Q. No. 2.** Explain Cellular Digital Packet Data (CDPD) network architecture. Explain its components. **5 + 5 = 10**

**OR**

What is **Mobile IP**? Explain the working principle of Mobile IP.

**3 + 5 = 10**

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