



Date: 27-08-2025

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

**HOME ASSIGNMENT**

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

**Semester - III (Session: 2023-2024, January)**

**Guidelines for Submission:**

1. Learners who have been admitted in the Academic Session (2023-2024, 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 : 22<sup>nd</sup> September, 2025.**
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**PAPER: INF 3016 (WEB PROGRAMMING TECHNOLOGIES)**

**Answer the following questions**

**2 x 10 = 20**

**Q. No. 1.** Create an HTML form in which user can enter at least 10 inputs (Check box, radio button, Password, Select and option must included in the form) **10**

**OR**

Explain the different ways to apply CSS style to an HTML document. Which styles will you prefer for multiple documents? Give your reasons. **10**

**Q. No. 2.** Explain different types of operators available in JavaScript. Why conditional statement is important in JavaScript? **10**

**OR**

How do you perform CRUD operations (Create, Read, Update, Delete) using PHP and MySQL? Provide code examples. **10**

**PAPER: INF 3026 (DISTRIBUTED SYSTEM)**

**Q. No. 1.** How Distributed systems are better than Centralized systems? Explain with real world examples. **10**

**OR**

Explain Lamport Logical clock in distributed system with suitable example. **10**

**Q. No. 2.** Explain Path-Pushing algorithm to detect distributed deadlock with a suitable example. **10**

**OR**

Explain how weak consistency can improve system performance and availability in distributed systems. Give example. **10**

**PAPER: INF 3036 (COMPILER DESIGN)**

**Q. No. 1.** Consider the following grammars and find out the FIRST and FOLLOW sets:

a)  $S \rightarrow aBDh$

$B \rightarrow Cc$

$C \rightarrow bC \mid \epsilon$

$D \rightarrow EF$

$E \rightarrow g \mid \epsilon$

$F \rightarrow f \mid \epsilon$

b)  $S \rightarrow Bb \mid Cd$

$B \rightarrow aB \mid \epsilon$

$C \rightarrow cC \mid \epsilon$

**3 + 7 = 10**

**OR**

a) Construct a DFA for set of strings over  $\{a,b\}$  where the length of the string is atmost 2.

b) Convert NFA to DFA for “ all strings in which third symbol from RHS is a” **4 + 6 = 10**

**Q. No. 2.** Let, G be the grammar

$S \rightarrow aB \mid bA$

$A \rightarrow a \mid aS \mid bAA$

$B \rightarrow b \mid bS \mid aBB$

For the string baaabbabba. Find leftmost derivation, rightmost derivation and Parse tree.

**3+3+4=10**

**OR**

What is parsing? How is top down parsing different from bottom up parsing? Explain top down parsing with the help of an example.

**2+3+5=10**

**PAPER: INF 3066 (DATA MINING AND WAREHOUSING)**

**Q. No. 1.** Write and explain the algorithm for mining frequent item sets?

Consider given database with nine transactions let min\_sup = 30%.

**5+5=10**

Find all frequent item sets.

TID	List of Item_IDs
1	a, b, e
2	b, d
3	b, c
4	b, b, d
5	a, c
6	b, c
7	a, c
8	a, b, c, e
9	a, b, c

**OR**

Explain market basket analysis with the help of an example.

**10**

**Q. No. 2.** Explain the role of data mining in healthcare with the help of an example.

**10**

**OR**

Explain the different OLAP operations with the help of an example.

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গুৱাহাটী বিশ্ববিদ্যালয়  
**Gauhati University**  
দূৰ আৰু অনলাইন শিক্ষা কেন্দ্ৰ  
**Centre for Distance and Online Education**

**ASNWERSCRIPT FOR HOME ASSIGNMENT**

**Roll Number (8 digit):** .....

*(GUCDOE Enrollment No)*

**G.U. Registration No.:** .....

**Programme Name:** .....

**Semester:** .....

**Paper Title:** .....

**Paper Code:** .....

**Name of the Study Centre:**.....

**N.B.:** Please note that the Name of the Candidate should not be mentioned anywhere. If found, the answer script will not be evaluated.)































