

CERTIFICATE IN INFORMATION TECHNOLOGY (CIT)

ASSIGNMENTS

(July - 2026 & January - 2027)

(CIT-001, CIT-002, CIT-003 and CITL-001)



**SCHOOL OF COMPUTER AND INFORMATION SCIENCES
INDIRA GANDHI NATIONAL OPEN UNIVERSITY
MAIDAN GARHI, NEW DELHI – 110 068**

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Important Notes

1. Submit your assignments to the Coordinator of your Study Centre on or before the due date.
2. Assignment submission before due dates is compulsory to become eligible for appearing in corresponding Term End Examinations. For further details, please refer to CIT Programme Guide.
3. To become eligible for appearing the Term End Practical Examination for the lab course CITL-001, it is essential to fulfill the minimum attendance requirements as well as submission of assignments (on or before the due date). For further details, please refer to the CIT Programme Guide.

Course Code : **CIT-001**
Course Title : **Fundamentals of Computer Systems**
Assignment Number : **CIT/CIT-001/ASSIGN/2026-27**
Maximum Marks : **25**
Last Dates for Submission : **31st October, 2026 (For July Session)**
15th April, 2027 (For January Session)

There are four questions in this assignment, which carry 25 marks. Answer all the questions. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the CIT Programme Guide. The examples, whenever asked to be given, should be different from those that are discussed in the corresponding course material.

Question 1:

- (a) Define a computer system from a functional perspective. Draw a functional block diagram of its architecture and illustrate the operational interactions among the Central Processing Unit (CPU), memory units, and peripheral interfaces. **(2 Marks)**
- (b) Describe the role of input and output devices in modern computing. Briefly explain the any two distinct types of output devices. **(2 Marks)**
- (c) Describe need of secondary storage systems. Contrast secondary storage with primary memory on parameters of volatility, latency, cost per unit of storage, and capacity constraints. **(2 Marks)**

Question 2:

- (a) Differentiate between system software and application software. Discuss where utility software fits within this system hierarchy, and explain how its service delivery to the operating system differs from that of specialized application tools with example. **(2 Marks)**
- (b) Define a flowchart and tell its utility. List and explain the standard geometric symbols used in flowchart construction, and design a flowchart to calculate simple interest. **(3 Marks)**
- (c) Write a C program that prompts the user to input the side of a square, and computes its total surface area, and displays the result. **(2 Marks)**

Question 3:

- (a) Describe the foundational objective of a computer network. Compare and contrast the physical layout and point-of-failure vulnerabilities of the Ring topology with those of the Bus topology. **(2 Marks)**
- (b) List the technical and operational distinctions between synchronous and asynchronous data transmission modes. Provide distinct, real-world networking examples of each mode. **(2 Marks)**

- (c) Describe the ISO/OSI Reference Model by listing its seven structural layers in sequential order. Succinctly describe the unique network responsibility assigned to each layer. **(3 Marks)**

Question 4:

- (a) Define the structural ecosystem of social networking platforms. Evaluate its primary societal benefits, the advantages of its communication velocity. How is it useful in promoting professional collaboration. **(2 Marks)**
- (b) Justify the institutional necessity of establishing rigorous information security frameworks within an organization. Identify and classify four modern security threats that actively compromise computer networks. **(2 Marks)**
- (c) Define the term ‘computer virus’ and classify the major categories of computer viruses. **(1 Marks)**

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Course Code : **CIT-002**
Course Title : **Introduction to Information Technology**
Assignment Number : **CIT/CIT-002/ASSIGN/2026-27**
Maximum Marks : **25**
Last Dates for Submission : **31st October 2026 (For July Session)**
15th April 2027 (For January Session)

There are four questions in this assignment. Answer all the questions. The examples, whenever asked to be given, should be different from those that are discussed in the corresponding course material.

Question 1: (Covers Block 1) (6 Marks)

- (a) How can information be created? What are the different ways of storing information? How is information related to Information and Communication Technologies (ICT)?
- (b) Explain any four technologies that can be categorised in ICT. What is the digital divide? What is its impact on employment and the development of a country?
- (c) What is a digital identity? How can digital identity be related to authentication, message integrity, and non-repudiation? Explain with the help of an example of each.

Question 2: (Covers Block 2) (2+1+2+2= 7 Marks)

- (a) Define the term e-Commerce. What are the different types of e-Commerce? Explain. What are the different technologies that can be used to address the security issues relating to e-commerce systems?
- (b) What are the differences between e-governance and e-democracy?
- (c) Explain the following in the context of e-learning:
 - (i) Graphics and Image formats
 - (ii) Use of e-mail in e-learning
 - (iii) E-learning standards
 - (iv) Online Examinations
- (d) Explain the use of ICT in medical equipment and online medical advice.

Question 3: (Covers Block 3) (6 Marks)

- (a) List and explain any 6 requirements for the development of an Information System for a Library.
- (b) What is a transaction processing system? Explain the input, output and processing requirements for maintaining finances in the Transaction processing system. Also, explain the features of the “manufacturing and logistics” component of a Management Information System.
- (c) List the features of the AGMARKNET and ERNET projects in India.

Question 4: (Covers Block 4)

(6 Marks)

- (a) Explain the components and characteristics of an embedded system with the help of a block diagram. Why is a real-time operating system needed in embedded systems?
- (b) Explain the use of the following in the context of HCI:
- (i) Microphone
 - (ii) Webcam
 - (iii) Sliders
 - (iv) Checkbox
- (c) Explain the following in the context of Computer Vision:
- (i) Pixel and image resolution
 - (ii) Image Processing
 - (iii) Inversion of 3D images into 2D
 - (iv) Occlusion
 - (v) Analysis of Satellite Image
 - (vi) Biometric-based visual identification of a person.

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Course Code : **CIT-003**
Course Title : **Web based Technologies and Multimedia Applications**
Assignment Number : **CIT/CIT-003/ASSIGN/2026-27**
Maximum Marks : **25**
Last Dates for Submission : **31st October, 2026 (For July Session)**
15th April, 2026 (For January Session)

There are two questions in this assignment which carry 25 marks. Answer all the questions. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the CIT Programme Guide.

Question 1: **(10 Marks)**

Explain the architecture and working of the Internet. Discuss the role of web browsers, search engines, and Internet protocols (HTTP, HTTPS, FTP, and SMTP) in accessing and exchanging information over the Internet. Illustrate your answer with suitable diagrams and examples.

Question 2: **(15 Marks)**

Describe the principles of effective web page design and multimedia integration. Explain the role of HTML, web page designing tools, frames, forms, graphics, audio, video, and animation in developing an interactive educational website. Discuss the factors that should be considered to improve usability and user experience.

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Course Code	:	CITL-001
Course Title	:	Laboratory Course
Assignment Number	:	CIT/CITL-001/ASSIGN/2026-27
Maximum Marks	:	25
Last Dates for Submission	:	31st October, 2026 (For July Session)
	:	15th April, 2027 (For January Session)

There are five questions in this assignment of 5 marks each. You may use illustrations and diagrams to enhance the explanations. Please go through the guidelines regarding assignments given in the CIT Programme Guide. Submit the screenshots also along with the coding and documentation.

Make suitable assumptions if any

Question 1: (5 Marks)

Write a C program using functions to accept three lists of numbers from the user and merge them into one sorted list. Each list should contain not more than five numbers. The program should validate the input, combine all the numbers, sort them in ascending order, and display the final sorted list.

Question 2: (5 Marks)

Create a Hospital Database using MS-Access. The database should include fields such as Doctor ID, Doctor Name, Specialization, Consultation Fee, Patient ID, Patient Name, Age, Gender, Patient Type, and Doctor's Recommendations. Add at least five records, create a data entry form, and generate a report showing patient details doctor-wise.

Question 3: (5 Marks)

Write a Java Applet to calculate Simple Interest. The applet should accept Principal Amount(P), Annual Rate of Interest(R), and Number of Months(M) as input. It should calculate Simple Interest using the formula: $S.I. = (P \times R \times M) / (100 \times 12)$ and display the result when the user clicks a button.

Question 4: (5 Marks)

Use MS-Word Mail Merge to create personalized admission letters for students. Prepare a data source containing Student Name, Course Name, Admission Number, Study Centre, Fee Status, and Reporting Date. Generate individual admission letters using Mail Merge.

Question 5: (5 Marks)

Create a Student Marks Analysis Sheet in MS-Excel. Prepare an Excel sheet with Enrolment Number, Student Name, Course 1, Course 2, Course 3, Course 4, Total, Percentage, and Grade. Use formulas to calculate total marks, percentage, grade, highest marks, lowest marks, and identify the top five students.