**MASTER OF COMPUTER APPLICATION** 

# ASSIGNMENTS

## MCA – 4<sup>th</sup> SEMESTER



(SESSON 2024-2025)

Directorate of Distance Education Guru Jambheshwar University of Science & Technology Hisar – 125001

## GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR DIRECTORATE OF DISTANCE EDUCATION Programme: Master of Computer Application

## Course Name: IoT and Cloud Computing Semester: 4<sup>th</sup>

Paper Code: MCA-41 Total Marks: 30

## **Important Instructions:**

- 1) Attempt all questions from each assignment given below.
- 2) Each assignment carries 15 marks.
- 3) All questions are to be attempted in legible handwriting on plane white A-4 size paper and upload the scanned copy of the assignments on student's portal.

#### **ASSIGNMENT-I**

- Q1. What is cloud computing? Explain its key characteristics. Also explain the three primary cloud service models: IaaS, PaaS, and SaaS.
- Q2. What is AWS? Give an overview of its services and architecture.
- Q3. Explain the architecture and components of OpenStack.

#### **ASSIGNMENT-2**

- Q1. What is PaaS? Describe its benefits and limitations. How does PaaS differ from IaaS in terms of control and flexibility?
- Q2. What is IoT architecture? Why is it important in the development of IoT systems? Describe the key components and layers of a basic IoT architecture.
- Q3. How is remote control and user interaction achieved in IoT systems? Discuss the role of mobile apps and dashboards in IoT interaction.

Prepared By: Er. Vinod Assistant Professor (CS) Centre for Distance and Online Education, GJUS&T, Hisar

## GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR DIRECTORATE OF DISTANCE EDUCATION Programme: Master of Computer Application

## Course Name: Mobile Application Development Semester: 4<sup>th</sup>

Paper Code: MCA-42 Total Marks: 30

## **Important Instructions:**

- 1) Attempt all questions from each assignment given below.
- 2) Each assignment carries 15 marks.
- 3) All questions are to be attempted in legible handwriting on plane white A-4 size paper and upload the scanned copy of the assignments on student's portal.

## **ASSIGNMENT-I**

- Q1. Explain Mobile OS Architecture with neat diagram.
- Q2. Discuss about Android core building blocks.
- Q3. Explain Toggle, Switch and Image Buttons.

## **ASSIGNMENT-2**

- Q1. Explain Activity Lifecycle with appropriate example.
- Q2. Discuss about Android Menu in detail.
- Q3. Describe SQLite and XML in detail.

Prepared By: Dr. Ritu Assistant Professor (CS) Centre for Distance and Online Education, GJUS&T, Hisar

## GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR DIRECTORATE OF DISTANCE EDUCATION Programme: Master of Computer Application

## Course Name: High Speed Network Semester: 4<sup>th</sup>

Paper Code: MCA-43(iv) Total Marks: 30

## **Important Instructions:**

- 4) Attempt all questions from each assignment given below.
- 5) Each assignment carries 15 marks.
- 6) All questions are to be attempted in legible handwriting on plane white A-4 size paper and upload the scanned copy of the assignments on student's portal.

## **ASSIGNMENT-I**

- Q1. Explain the evolution from Ethernet to Fast Ethernet and then to Gigabit Ethernet. Also describe the benefits and limitations of using Gigabit Ethernet in LAN environments.
- Q2. List the key features of Fibre Channel that make it suitable for storage networks. Also explain the different topologies supported by Fibre Channel.
- Q3. Describe the ATM reference model. How is it different from the OSI model?

## **ASSIGNMENT-2**

- Q1. Explain the layered architecture of IEEE 802.16. How does it differ from 802.11?
- Q2. Describe the protocol stack of Bluetooth. Highlight the functions of each layer.
- Q3. Explain the architecture of the GSM network. Identify its major components and their functions.

Prepared By: Dr. Neeraj Verma Assistant Professor (CS) Centre for Distance and Online Education, GJUS&T, Hisar

## CENTRE FOR DISTANCE AND ONLINE EDUCATION GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

## Course: Computer Graphics Semester: 4<sup>th</sup>

Paper Code: MCA-44(iv) Total Marks: 30

### **Important Instructions:**

- 1) Attempt all questions from each assignment given below.
- 2) Each assignment carries 15 marks.
- 3) All questions are to be attempted in legible handwriting on plane white A-4 size paper and same is uploaded through login your account.

## ASSIGNMENT - 1

- Q1. Explain the Line Drawing Algorithms: DDA and Bresenham's algorithm. How do they differ in terms of implementation and efficiency?
- Q2. Describe the Mid-point Circle Drawing Algorithm and its advantages over other circle drawing methods.
- Q3. Discuss the different types of transformations in 2D graphics, focusing on translation, scaling, and rotation. Provide their respective matrix representations.

## ASSIGNMENT - 2

- Q1. Describe the Z-buffer algorithm for hidden surface removal. How does it ensure that the closest surfaces are displayed in a 3D rendered scene?
- Q2. Define Bezier curves and B-Spline curves. Explain how they are used for parametric representation of curves.
- Q3. What is image processing in the context of computer graphics? Explain the importance of geometric transformations and filtering techniques in image manipulation.

Prepared By: Ms. Kapila Kundu Assistant Professor (CSE) CDOE, GJUS&T, Hisar