

2025

M.Tech. 1st Semester Examination
COMPUTER SCIENCE WITH AI

Paper : MCIE405B0

[Edge Computing]

Full Marks : 100

Time : Three Hours

*The figures in the margin indicate full marks.
Candidates are required to give their answers
in their own words as far as practicable.*

Group - A

Answer any *five* questions : 2×5=10

1. Define Edge Computing and state one of its key objectives.
2. What is the difference between Edge Computing and Cloud Computing?
3. List any two applications of Edge Computing.
4. What is meant by latency in Edge Computing environments?
5. Define IoT Edge Devices with one example.

P.T.O.

6. What is data offloading in Edge Computing?
7. What role does bandwidth optimization play in Edge Computing?
8. Define fog computing.

Group - B

Answer any *four* questions : 15×4=60

9. Explain the Edge Computing architecture in detail, including device layer, edge layer, fog layer, and cloud layer with a neat diagram.
10. Explain the role of Edge Computing in any three real-time applications.
11. Describe Edge Analytics and its significance. Also discuss the role of Edge Computing in IoT-based systems. 8+7
12. Discuss the security and privacy challenges in Edge Computing along with its possible solution.
13. (i) Compare fog computing, cloud computing and edge computing.
(ii) Describe data management techniques used in Edge Computing. 7+8
14. (i) Explain the concept of containerization at edge.
(ii) Explain task scheduling and load balancing techniques in Edge Computing. 5+10

(3)

15. What is virtualization? Explain its importance in Edge Computing. Also discuss virtual machines vs. containers in Edge Computing. 3+4+8
16. Discuss resource allocation and scheduling algorithms in Edge Computing. Also explain resource management challenges in Edge Computing. 8+7

Internal Assessment - 30 marks
