Week 5: Assignment 5

The due date for submitting this assignment has passed.

Due on 2025-02-26, 23:59 IST.

Assignment submitted on 2025-02-25, 16:23 IST

1) How is the resource allocation problem in Collaborative Edge-Cloud computing modeled to optimize long-term objectives? ***1 point***

- As a static optimization problem using linear programming.
- As a deterministic system solved using brute force methods.
- As a Markov Decision Process (MDP) for reward maximization.
- As a purely heuristic problem with no mathematical framework

Yes, the answer is correct.
Score: 1

Accepted Answers:
As a Markov Decision Process (MDP) for reward maximization.

2) In MEC, what is horizontal offloading? ***1 point***

- Distributing tasks across multiple edge servers
- Transferring tasks to a cloud server
- Offloading tasks locally
- Processing tasks sequentially

Yes, the answer is correct.
Score: 1

Accepted Answers:
Distributing tasks across multiple edge servers

3) If the local execution delay for a task is 0.02 seconds and the remote execution delay is 0.015 seconds, should the task be offloaded? ***1 point***

- Yes
- No
- Only for partial offloading
- Depends on network conditions

No, the answer is incorrect.
Score: 0
Accepted Answers:
Yes

4) Which of the following influences task offloading decisions in MEC? ***1 point***

- Network latency
- User preferences
- Device mobility
- All of the above

Yes, the answer is correct.
Score: 1
Accepted Answers:
All of the above

5) What is the primary difference between vertical and horizontal offloading? ***1 point***

- Vertical offloading moves tasks between similar resources, while horizontal distributes across edge servers.
- Vertical offloading moves tasks to higher-level resources, while horizontal distributes across similar nodes.
- Vertical offloading reduces bandwidth, while horizontal increases it.
- Horizontal offloading is only used in cloud computing.

Yes, the answer is correct.
Score: 1
Accepted Answers:
Vertical offloading moves tasks to higher-level resources, while horizontal distributes across similar nodes.

6) Which MEC architecture model is characterized by deploying cloud capabilities at small cells? ***1 point***

- Small Cell Cloud (SCC)
- Mobile Micro Cloud (MMC)
- ETSI MEC
- Fast Moving Personal Cloud

Yes, the answer is correct.
Score: 1
Accepted Answers:
Small Cell Cloud (SCC)

7) A task requires 1,000,000 bits to be transmitted to an MEC server with a bandwidth of 10 Mbps. What is the transmission time? ***1 point***

- 0.01 seconds

- 1 second
- 10 seconds
- 0.1 seconds

Yes, the answer is correct.
Score: 1
Accepted Answers:
0.1 seconds

8) What is the primary goal of Mobile Edge Computing (MEC)? ***1 point***

- Enhance mobile battery life
- Reduce latency and improve bandwidth
- Replace cloud computing
- Minimize data storage requirements

Yes, the answer is correct.
Score: 1
Accepted Answers:
Reduce latency and improve bandwidth

9) What is the main advantage of dynamic resource allocation in MEC? ***1 point***

- Simplified implementation
- Increased static efficiency
- Better handling of varying workloads
- Reduced energy efficiency

Yes, the answer is correct.
Score: 1
Accepted Answers:
Better handling of varying workloads

10) Which entity in MEC architecture provides computing resources and storage at the edge? ***1 point***

- Cloud server
- MEC server
- User Equipment (UE)
- Base Station

Yes, the answer is correct.
Score: 1
Accepted Answers:
MEC server