

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

Fifth Semester

Computer Science and Engineering (AIML)

20AMPC502 – IoT AND EDGE COMPUTING

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

	Marks	K- Level	CO
1. Which of the following components is typically used to process data at the edge in an edge computing architecture? a) Cloud servers b) Edge gateways c) Data lakes d) Mainframe computers	1	K1	CO1
2. Which edge platform is specifically designed for IoT applications? a) Amazon S3 b) Microsoft Azure IoT Edge c) Google Drive d) Dropbox	1	K1	CO2
3. What is the main function of edge computing nodes in IoT? a) Data visualization b) Data processing and routing c) User management d) Device branding	1	K1	CO2
4. The process of converting physical signals into digital data in IoT is done by _____. a) Sensors b) actuators c) routers d) gateways	1	K1	CO2
5. What role does edge computing play in telemedicine for palliative care? a) Reducing device costs b) Simplifying user interfaces c) Enhancing real-time data processing d) Increasing latency	1	K1	CO3
6. What is a primary benefit of telemedicine in palliative care? a) Increased hospital admissions b) Improved patient accessibility c) Decreased communication d) Limited specialist involvement	1	K1	CO3
7. To generate an SSH key pair, the command used in the terminal is _____. a) SSH-copy-id b) SSH-keygen c) scp d) SSH	1	K1	CO4
8. What voltage level is associated with high on the GPIO of raspberry Pi? a) 2.5 b) 3.3 c) 3.5 d) 5	1	K1	CO4
9. What is Google Cloud Platform (GCP) primarily used for? a) Social media management b) Cloud computing services c) Graphic design d) Video editing	1	K1	CO5
10. Which organization produces standards like FIPS and various cryptographic guidelines? a) ENISA b) ISO c) NIST d) DHS	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

11. Summarize few examples of on-device problems.	2	K2	CO1
12. Interpret the need for fog computing.	2	K2	CO1
13. State Metcalfe's law.	2	K1	CO2
14. Summarize any three energy harvesting techniques applicable in IoT systems.	2	K2	CO2
15. Outline the key performance indicators involved in Telemedicine and Palliative care.	2	K2	CO3
16. Explain the major components present in Telemedicine system.	2	K2	CO3
17. Illustrate the GPIO pins that can be configured as PWM pins.	2	K2	CO4
18. Interpret whether all Raspberry Pi have the same pinout and justify your answer.	2	K2	CO4
19. Explain the methods used for carrier aggregation.	2	K2	CO5
20. Compare and contrast different types of MAC protocols for various IoT scenarios.	2	K2	CO5
21. Relate how IoT devices can improve customer experience in retail environments.	2	K2	CO6

22. Name two key benefits of using digital twins in device management and monitoring. 2 K1 CO6
- PART - C (6 × 11 = 66 Marks)**
Answer ALL Questions
23. a) Illustrate the importance of cache and memory hierarchy in edge hardware. 11 K2 CO1
OR
b) Discuss in detail about thermocouples, resistance temperature detectors and photoelectric sensors. 11 K2 CO1
24. a) With a neat sketch explain the functional example of TI SensorTag CC2650. 11 K2 CO2
OR
b) Discuss in detail about the Shannon-Hartley theorem. 11 K2 CO2
25. a) Discuss about the System Requirements of Telemedicine Palliative care. 11 K2 CO3
OR
b) Explain the importance of the Far Edge architecture in Telemedicine Palliative care. 11 K2 CO3
26. a) Model the working principle of UART and PWM pins in the Raspberry Pi. 11 K3 CO4
OR
b) Identify the use of I2C in the Raspberry Pi. 11 K3 CO4
27. a) Identify the importance of the Sigfox protocol stack by applying it to a real-time IoT use case. 11 K3 CO5
OR
b) Apply the working of the MQTT publish–subscribe model to a real-time IoT application. 11 K3 CO5
28. a) Analyze the role of Physical and hardware security in IoT. 11 K4 CO6
OR
b) Examine the need for Shell security to be deployed in IoT applications. 11 K4 CO6