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Question Paper Code : 11839

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2026.

Fifth/Sixth/Seventh/Eighth Semester

Civil Engineering

OCS352 — IoT CONCEPTS AND APPLICATIONS

(Common to: Aeronautical Engineering/Aerospace Engineering/Automobile Engineering/Electrical and Electronics Engineering/Environmental Engineering/Geoinformatics Engineering/Industrial Engineering/Industrial Engineering and Management/Instrumentation and Control Engineering/Manufacturing Engineering/Marine Engineering/Materials Science and Engineering/Mechanical Engineering/Mechanical Engineering (Sandwich)/Mechanical and Automation Engineering/Mechatronics Engineering/Petrochemical Engineering/Production Engineering/Robotics and Automation/Safety and Fire Engineering/Agricultural Engineering/Bio Technology/Biotechnology and Biochemical Engineering/Chemical Engineering/Chemical and Electrochemical Engineering/Fashion Technology/Food Technology/Handloom and Textile Technology/Petrochemical Technology/Petroleum Engineering/ Pharmaceutical Technology/Plastic Technology/Textile Chemistry/Textile Technology)

(Regulations 2021)

Time : Three hours Maximum : 100 marks

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Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Internet of Things (IoT).
2. Compare between edge and cloud computing.
3. What is the role of sensors in IoT?
4. List the different types of actuators.
5. Define RFID.
6. How IoT can be used in embedded systems?
7. What is interfacing?

8. What is the purpose of GPIO pins?
9. Compare between smart mobility and smart transport.
10. List any two use cases of smart home automation.

PART B — (5 × 13 = 65 marks)

11. (a) Illustrate the layered architecture of IoT with neat diagram and explain the functions of each layer.

Or

- (b) (i) Discuss in detail the major enabling technologies for IoT. (8)
(ii) Compare and contrast between oneM2M and IoTWF architectures. (5)

12. (a) (i) Write a detailed note on sensing, communication and processing layers in IoT systems. (8)
(ii) Compare and contrast between bluetooth and zigbee technologies. (5)

Or

- (b) With a functional diagram, explain in detail the key components of IoT ecosystem.
13. (a) Write a detailed note on the working of MQTT and CoAP protocols used in IoT.

Or

- (b) Compare and contrast between IPv4 and IPv6 along with its advantages and limitations.
14. (a) Explain the architecture of Raspberry Pi and discuss IoT deployment on it.

Or

- (b) Discuss the architecture of Arduino and explain the communication of it.
15. (a) Discuss the design and implementation of IoT solution for environment monitoring and surveillance.

Or

- (b) Discuss the design and implementation of IoT solution for smart agriculture.

PART C — (1 × 15 = 15 marks)

16. (a) Describe industrial IoT and design an IoT application to address it.

Or

- (b) Illustrate in detail about the architecture of 6LoWPAN in resource constrained IoT environments with a use case.
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