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Question Paper Code : 81833

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2025.

Sixth/Seventh/Eighth Semester

Civil Engineering

OCS 352 — 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

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the different types of IoT?
2. Differentiate between IoT and M2M.
3. How do sensors differ from actuators?
4. What do you mean by a smart object?
5. Write short notes on RFID.
6. What is a firmware?
7. Mention the use of USB port in Arduino board.

8. How is Thonny useful?
9. How is interoperability applicable in an IoT environment?
10. Give two applications using smart mobility.

PART B — ($5 \times 13 = 65$ marks)

11. (a) With diagrams, explain the functions of various layers in the Core IoT functional stack.

Or

- (b) Briefly analyze the benefits and functions of IoT edge.
12. (a) Discuss in detail about the purpose and use of different components in an IoT ecosystem.

Or

- (b) With a neat block diagram and an example, explain how a WiFi communication module is of use in an IoT environment.
13. (a) With diagrams, explain the functioning of the core elements in a 6LoWPAN network, highlighting its advantages and limitations.

Or

- (b) With a neat block diagram, explain the structure, characteristics and working of an embedded system.
14. (a) Explain the functions of various blocks in a Raspberry Pi.

Or

- (b) With examples, discuss in brief about how interfacing can be done with GPIO pins.
15. (a) With an example, discuss in brief about how IoT can be used in Industry.

Or

- (b) Explain how IoT can be of use in Home automation.

PART C — ($1 \times 15 = 15$ marks)

16. (a) With diagrams and real-life scenarios, explain how IoT is useful for Smart Health/Health care sector.

Or

- (b) (i) What are the different types of cloud computing services? Explain. (8)
- (ii) Discuss in brief about the characteristics and functions of any two public Cloud platforms. (7)