

Mumbai University

November - 2018

B.Sc.IT: SEMESTER – V

(QUESTION PAPER)

[CBCS – Choice Based]

INTERNET

OF

THINGS

INTERNET OF THINGS

NOVEMBER – 2018 | CBCS – CHOICE BASED

MUMBAI UNIVERSITY
B.Sc.IT: SEM-V
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Time: 2 ½ Hours

Total Marks: 75

NOTE:

- (1) All questions (Q.1 to Q.5) are compulsory.
- (2) Figures on the right indicate total marks. All sub-questions carry equal marks.
- (3) Write the question numbers clearly as mentioned in the Question Paper.
- (4) Mixing of sub-questions is not allowed.
- (5) Draw diagrams and give examples whenever necessary.
- (6) Use of calculator or any other electronic gadget is not allowed.

Q.1 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Define and explain the Internet of Things. (5)
- (B) "Any sufficiently advanced technology is indistinguishable from magic". Discuss. (5)
- (C) Explain Cloud and Ambient Technology using example of Live Wire. (5)
- (D) What is manufactured Normalcy Field? Explain. (5)
- (E) Differentiate between Static IP Address and Dynamic IP Address. (5)
- (F) Define Protocol. Explain the following Application Layer Protocols: HTTP, HTTPS, SMTP, and FTP. (5)

Q.2 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Discuss the tradeoffs between Cost Versus Ease of Prototyping. (5)
- (B) What are the challenges when we move From Prototype to Mass Production? Explain. (5)
- (C) Discuss open source Versus Closed Source Hardware and Software. State its advantages and disadvantages. (5)
- (D) Explain the following with respect to Prototyping Embedded Devices: Processor Speed, RAM, Networking, USB, Power Consumption and Physical Size and Form Factor. (5)
- (E) How is development done for Arduino? Explain. (5)
- (F) Compare Raspberry Pi and Arduino. (5)

Q.3 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Explain the Non-Digital Methods of Prototyping. (5)
- (B) What are Laser Cutter? Explain the main features to consider while choosing a Laser Cutter. (5)
- (C) Explain the different Methods used for 3D Printing. (5)
- (D) Discuss the different Standards that must be considered while implementing APIs. (5)
- (E) Explain POLLING and COMET. (5)
- (F) Write a short note on Message Queuing Telemetry Transport Protocol. (5)

Q.4 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) Discuss the limitations of Memory in Embedded Devices. How is it managed? Explain. (5)
- (B) What are the concerns Regarding Performance and battery Life while writing code for Embedded Systems? (5)

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- (C) Write a short note on libraries for Embedded Systems. (5)
- (D) What is a Business Model? Who is the Business for? Explain. (5)
- (E) Explain the following Business Models: Make Thing Sell Thing, Subscriptions, and Customisation. (5)
- (F) Write a short note on Venture Capital. (5)

Q.5 ATTEMPT ANY THREE QUESTIONS: (15 MARKS)

- (A) What are the different Software Options for Designing PCB? Explain. (5)
- (B) Explain the steps for manufacturing PCBs. (5)
- (C) What is the importance of Certification for IoT Devices? Explain. (5)
- (D) Explain Privacy with respect to Internet of Things. (5)
- (E) Discuss the five Critical Requirements for Sensor Commons Project. (5)
- (F) Write a short note on Cautious Optimism. (5)