Acuity Educare

INTERNET OF THINGS
SEM : V

SEM V: UNIT 1 To UNIT 5

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Note:

- Each unit comprises of three color codes.
- Students are expected to do at least two color codes from each unit.
- Blue and red colors are preferred ones.

UNIT – 1

1. Explain the working of IP Protocol. Explain the following application layer protocols: HTTP, HTTPS, SMTP, FTP

   OR

   Explain the six communication protocol used by IoT.
2. Differentiate between static IP address and Dynamic IP address.
3. Write a note on Calm and Ambient Technology.
4. Write a note on DNS (Domain Name System) OR What is DNS? How does it work?
5. Define and explain the Internet of Things
6. Explain the following:
   i. MQTT- protocol architecture
   ii. MQTT-SN – protocol architecture
7. Explain the IoT stack with diagram.

8. What is MAC (Media Access Control) address? Explain
9. List and explain the roles of people making IOT.
10. What are TCP and UDP ports? Explain with examples.
11. What is manufactured normalcy field? Explain
12. Define and explain Ubiquitous Computing (ubicom),
13. Describe the design principles for IoT.
14. Explain calm and ambient technology using example of Live Wire.
15. “Data available through IOT device belongs to public or company which implement the
16. IOT device”. Discuss.
17. Discuss the issue of Privacy in Internet of Things.
18. Explain the comparison of BLE to NFC.

19. “Any sufficiently advanced technology in indistinguishable from magic”. Discuss.
20. List and explain the roles of people making IOT.
21. Explain the components of Internet of Things?
22. Explain IPV6 for IoT.
23. Describe the properties of smart physical objects.
24. What is the first class citizen on the internet?
25. What is small and loosely joined IoT?

UNIT – 2

1. Discuss the factors we should consider when deciding to build Internet of Things device.
2. Differentiate between open source and closed source.
3. Describe the benefits of sketching and prototyping.
4. Define Electronics, Sensors and Actuators.
5. Explain the characteristics of IoT device.
6. Explain the following with respect to prototyping embedded devices: Processor Speed, RAM, Networking, USB, Power Consumption and Physical Size and Form Factor.

7. Explain the physical prototype and mass personalization.
8. Explain the primary guidelines for prototyping. Or what is sketching? Explain its role in prototyping.
9. Which type of software should you use for business purposes?
10. Where does open source fit in your business?
11. How is development done for Arduino? Explain.
12. The Good night lamp. Ii) Botanicals iii) Baker treat
13. “Open source has a competitive advantage”. Discuss
14. How can one tap into the community for promoting IoT devices? Explain.
15. Explain the Rasberry pi 3 model B microcontroller board.
16. Write note on Sketching
17. Write note on Raspberry Pi. Or f. Compare Raspberry Pi and Arduino.
18. What are the disadvantages of Open source?
19. Explain the several factors that need to be considered when identifying and appropriate platform.

20. Describe closed source for mass market projects.
21. Discuss the tradeoffs between cost versus ease of prototyping.
22. What are the challenges when we move from prototype to mass production? Explain.
23. Discuss open source versus closed source hardware and software. State their advantages and disadvantages.
24. With the help of an example explain the process of Scaling up the electronics.
25. Explain the following IoT devices built with Arduino:

UNIT -3

1. Define and explain the Laser cutting. Or Write note on LASER Cutting
2. What is 3D printing? Classify and explain the types of 3D printing or Discuss the methods of 3D printing.
3. Define and explain the concept of CNC milling. Or what is CNC Milling? Explain.
4. What is polling? Explain in brief
5. Explain HTML5 web socket
6. Compare Raspberry Pi and Arduino.
7. What is comet? Explain

8. Explain the non-digital method.
9. Define following:
   i) Scraping
   ii) Legalities
   iii) Clockdillo

10. Explain the concept designing a web application for humans.
11. Explain the sketch iterate and explore process in prototyping.
12. What is milling? Explain.
13. How is development done for Arduino? Explain.
14. Discuss the tradeoffs between cost versus ease of prototyping.

15. How to use the curl to test?
16. Define and explain the concept of repurposing/Recycling.
17. Write note on MQTT Protocol
18. What are the challenges when we move from prototype to mass production? Explain.
19. Discuss open source versus closed source hardware and software. State their advantages and disadvantages.
20. What are the legalities associated with scrapping?

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UNIT – 4

1. Classify and explain the types of memory. Or Explain different types of memory.
2. Write a short note on business model canvas. Or what is a business model? Who is the business for? Explain.
3. Write a short note on Libraries for embedded systems.
4. Discuss the limitations of memory in embedded devices. How is it managed? Explain.
5. What is Debugging for Internet of Things device? Explain.
6. With the help of examples, compare stack and heap.

7. Define space and time.
8. Describe hobby projects and opensource.
9. Define the venture capital. Or What is venture capital? How can one exit?
10. Explain the following:
    i. Govt. funding.
    ii. Crowd funding
11. Explain how to achieve customization in Internet of Things devices.
12. Explain the following business models: Make Thing Sell Thing, Subscriptions, Customisation
13. What are libraries? Explain with examples
14. Define business model .Explain different factors in the definition.

15. With the help of a diagram, explain business model canvas.
16. Describe funding an Internet of Things startup.
17. What are the concerns regarding performance and battery life while writing code for embedded systems?
18. Describe the performance and battery life.

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Unit – 5

1. What is a design kit?
2. Classify and explain manufacturing printed circuit boards. Or explain the steps for manufacturing PCBs.
3. Explain the cautious optimism. Or Write a short note on cautious optimism.
4. What is Crowdsourcing? Explain.
5. Discuss the different environmental issues in Internet of Things
6. Write a short note on mass-producing the case and other fixtures.

7. Describe the correctness and maintainability.
8. Explain the following terms:
    i. Privacy
    ii. Control
    iii. Disrupting control
    iv. Crowd sourcing
9. Explain common PCB (Printed Circuit Board) making techniques.
10. Discuss the phase of Testing in manufacturing of Internet of Thing devices.
11. Discuss the advantage and disadvantages of technology.
12. What is environmental cost of Internet service for IOT device? What is the solution?
13. What are the different software options for designing PCB? Explain.
14. What is the importance of Certification for IoT devices? Explain.
15. Explain privacy with respect to Internet of Things.

16. Explain the important guidelines to deal with issue of security in Internet of Things.
17. Discuss the main goals of Open Internet of Things definition
18. Discuss the five critical requirements for sensor commons project.
19. Discuss the issues in scaling up the software for large scale IOT devices.
20. How Internet of Things as a part of solution?

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