**Vidyalankar School of Information Technology**

**T.Y.B.Sc.I.T. Semester V**

**Subject: Internet of Things**

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| **Unit 1** | |
| 1. | Define and explain the Internet of Things. (Oct 2018) |
| 2. | “Any sufficiently advanced technology is indistinguishable from magic”. Discuss. (Oct 2018) |
| 3. | Explain calm and ambient technology using example of Live wire. (Oct 2018) (May 2019) |
| 4. | What is manufactured normalcy field? Explain. (Oct 2018) (Nov 2019) |
| 5. | Differentiate between static IP address and Dynamic IP address. (Oct 2018) |
| 6. | Define protocol. Explain the following application layer protocols: HTTP, HTTPS, SMTP, FTP. (Oct 2018) |
| 7. | Explain component of Internet of Things. (May 2019) |
| 8. | What is MAC (Media Access Control) address? Explain. (May 2019) |
| 9. | Discuss the issue of Privacy in Internet of Things. (May 2019) |
| 10. | Write the working of IP Protocol. (May 2019) |
| 11. | Write short note on DNS (Domain Name System). (May 2019) (Nov 2019) |
| 12. | Define and Explain Ubiquitous Computing (Ubicom) (Nov 2019) |
| 13. | List and explain the roles of people making IoT. (Nov 2019) |
| 14. | “Data available through IOT device belongs to public or company which implements the IOT device”. Discuss. (Nov 2019) |
| 15. | What are TCP n UDP ports? Explain with examples. (Nov 2019) |
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| **Unit 2** | |
| 1. | Discuss the trade-offs between cost versus ease of prototyping. (Oct 2018) |
| 2. | What are the challenges when we move from prototype to mass production? Explain. (Oct 2018) |
| 3. | Discuss open source versus closed source hardware and software. State their advantages and disadvantages. (Oct 2018) (May 2019) |
| 4. | Explain the following with respect to prototyping embedded devices: Processor speed, RAM, Networking, USB, Power Consumption and Physical size and form factor. (Oct 2018) |
| 5. | How is development done for Arduino? Explain. (Oct 2018) |
| 6. | Compare Raspberry Pi and Arduino. (Oct 2018) |
| 7. | Write note on Sketching. (May 2019) (Nov 2019) |
| 8. | Write Short note on sensor and actuators. (May 2019) |
| 9. | Write short note on Raspberry Pi. (May 2019) |
| 10. | Discuss the factors we should be considered when deciding to build Internet of Things device. (May 2019) |
| 11. | “Open source has a competitive advantage”. Discuss. (Nov 2019) |
| 12. | How can one tap into the community for promoting IOT devices? Explain. (Nov 2019) |
| 13. | With the help of an example explain the process of Scaling up the electronics. (Nov 2019) |
| 14. | Explain the following IOT devices built with Arduino. (i) The Good Night Lamp (ii) Botanicals (iii) Baker Treat (Nov 2019) |
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| **Unit 3** | |
| 1. | Explain the non-digital methods of prototyping. (Oct 2018) |
| 2. | What are laser cutters? Explain the main features to consider while choosing a laser cutter. (Oct 2018) (May 2019) (Nov 2019) |
| 3. | Explain the different methods used for 3D printing. (Oct 2018) (May 2019) |
| 4. | Discuss the different standards that must be considered while implementing APIs. (Oct 2018) |
| 5. | Explain POLLING and COMET. (Oct 2018) |
| 6. | Write a short note on Message Queuing Telemetry Transport Protocol. (Oct 2018) |
| 7. | Explain the term Scraping. (May 2019) |
| 8. | What is POLLING? Explain in brief. (May 2019) |
| 9. | Write a note on MQTT Protocol. (May 2019) |
| 10. | What is CNC Milling? Explain. (May 2019) (Nov 2019) |
| 11. | Explain the sketch, iterate and explore process in prototyping. (Nov 2019) |
| 12. | What are the legalities associated with scrapping? (Nov 2019) |
| 13. | What is comet? Explain. (Nov 2019) |
| 14. | Explain HTML5 web socket. (Nov 2019) |
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| **Unit 4** | |
| 1. | Discuss the limitations of memory in embedded devices. How is it managed? Explain. (Oct 2018) |
| 2. | What are the concerns regarding performance and battery life while writing code for embedded systems? (Oct 2018) |
| 3. | Write a short note on Libraries for embedded systems. (Oct 2018) (Nov 2019) |
| 4. | What is a business model? Who is the business for? Explain. (Oct 2018) |
| 5. | Explain the following business models: Make Thing Sell Thing, Subscriptions, Customization. (Oct 2018) |
| 6. | Write a short note on Venture Capital. (Oct 2018) (May 2019) |
| 7. | Explain the different types of memories. (May 2019) (Nov 2019) |
| 8. | What is debugging for Internet of Things device? Explain. (May 2019) |
| 9. | Write a short note on Long tail of Internet. (May 2019) |
| 10. | Discuss the business model canvas for Internet of Things. (May 2019) (Nov 2019) |
| 11. | Explain how to achieve customisation in Internet of Things. (May 2019) |
| 12. | With the help of example, compare stack and heap. (Nov 2019) |
| 13. | Define business model. Explain different factors in the definition. (Nov 2019) |
| 14. | What is venture capital? How can one exit? (Nov 2019) |
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| **Unit 5** | |
| 1. | What are the different software options for designing PCB? Explain. (Oct 2018) |
| 2. | Explain the steps for manufacturing PCBs. (Oct 2018) |
| 3. | What is the importance of Certification for IoT devices? Explain. (Oct 2018) |
| 4. | Explain privacy with respect to Internet of Things. (Oct 2018) |
| 5. | Discuss the five critical requirements for sensor commons project. (Oct 2018) |
| 6. | Write a short note on cautious optimism. (Oct 2018) |
| 7. | What is Crowdsourcing? Explain. (May 2019) |
| 8. | Discuss different environmental issue in Internet of Things. (May 2019) (Nov 2019) |
| 9. | Explain common PCB (Printed Circuit Board) making techniques. (May 2019) |
| 10. | Discuss the phase of Testing in manufacturing of Internet of Things device. (May 2019) |
| 11. | Explain important guidelines to deal with issue of security in Internet of Things. (May 2019) |
| 12. | Discuss the main goals of Open Internet of Things definition. (May 2019) |
| 13. | Explain in detail the process of designing kits. (Nov 2019) |
| 14. | Write a short note on mass-producing the case and other fixtures. (Nov 2019) |
| 15. | Discuss the issues in scaling up the software for large scale IOT devices. (Nov 2019) |
| 16. | Discuss the advantage and disadvantage of technology. (Nov 2019) |
| 17. | “The internet destroys the state”. Discuss. (Nov 2019) |
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