

Duration: 2 ½ Hrs

16

**Q. 1** Answer *ANY FOUR* of the following:

- a What is System? Also explain the concept of Embedded Systems.
- b Write a short note on Processors.
- c Explain ARM8 architecture with block diagram.
- d What is Raspberry Pi? Enlist the Raspberry pi Hardware components.
- e Write the steps to install Raspbian operating system on raspberry pi model
- f State the difference between SoC and CPU.
- g Explain the architecture of SoC.
- h Write a short note on Compute units of GPU with block diagram.

16

**Q. 2** Answer *ANY FOUR* of the following:

- a Explain the following Linux Commands: nmap, awk, cd, cp, chown.
- b Write a short note on components of Node.js.
- c Explain I2C as communication interface in Raspberry Pi.
- d Write a short note on GPIO pin numbering.
- e What is python and enlist the feature of Python.
- f Explain Cross Compiler with example.
- g Differentiate between I2C, SPI and UART with diagram.
- h Draw and explain a diagram tree of Node.js parts.

16

**Q. 3** Answer *ANY FOUR* of the following:

- a What is IoT? Enlist and explain applications of IoT.
- b Write a simple LED blinking program using python.
- c What are different attacks possible in IoT? Explain in detail any 2 attacks.
- d Explain any two tools for achieving security in IoT.
- e How to provide a global identity by XMPP protocol?
- f Write a short note on Clyster platform.
- g Write a short note on CoAP Protocol with security aspects.
- h Write a short note on SenseIoT platform.

12

**Q. 4** Answer *ANY THREE* of the following:

- a What is SoC? How this small Soc boots without BIOS?
- b Write a short note on FPGA with advantages.
- c Explain the difference between Microprocessors and Microcontrollers.
- d Write a short note on free open source Raspbian OS.
- e Write a short note on Pulse Width Modulation.
- f Explain the concept of HTTP request / response pattern.