SYCS

(2 ½ Hours)   [Total Marks: 75]

N.B.   1) All questions are compulsory.

2) Figures to the right indicate marks.

3) Illustrations, in-depth answers and diagrams will be appreciated.

4) Mixing of sub-questions is not allowed.

Q. 1   **Attempt All (Each of 5Marks)**   **(15M)**

(a)   Multiple Choice Questions

     1. Which one of the following is **not** an HTTP Method

     (a) GET   (b) POST   (c) UNDO   (d) DELETE

     2. The_____command changes the user and/or group that owns a file

     (a) chown   (b) sudo   (c) change permission   (d) ls

     3. LED stands for _____

     (a) Light Emitting Diode   (b) Light End Diode

     4. Raspberry Pi GPIO has _____ number of pins.

     (a) 20   (b) 40   (c) 25   (d) 30

     5. _____ is Tools for achieving security

     (a) Virtual Private Networks   (b) DDoS

(b)   Fill in the blanks

{ publisher, HTTP, Advanced RISC Machine, UART , Advanced Raspberry Machine, Internet protocols, GND , UDP , Client & server}

     1. _____ works on request - response architecture.

     2. The role of the _____ is to connect to the message broker and publish content

     3. _____ is an asynchronous serial communication protocol.

     4. _____ are the pins you use to ground your devices.

     5. ARM is _____.

(c)   Answer in 1 – 2 sentences

     1. What is PWM.

     2. What is thinger.io

     3. What is the main difference between CoAP and HTTPU.

     4. Define the term - Protocol.

     5. List stages of 5-stage pipeline organisation

P.T.O.

Q. 2   Attempt the following (Any THREE)   (15M)

(a)   Explain, How small SoC boots without BIOS.

(b)   Explain FPGA.

(c)   Write the steps to install Raspbian operating system on raspberry pi model B.

(d)   What is ARM? Write a short note on features of ARM 8.

(e)   Explain the basic hardware components of Raspberry Pi.

(f)   State the difference between Soc and CPU

Q. 3   Attempt the following (Any THREE)   (15M)

(a)   Explain following terms:
      1.Booth multiplier
      2. Control unit

(b)   Write a short note on free open source Raspbian OS.

(c)   Define and explain with an example Pulse Width Modulation

(d)   Explain cross compiler with example.

(e)   Explain, what is node.js? Write note features of node.js?

(f)   Define and explain GPIO programming.

Q. 4   Attempt the following (Any THREE)   (15M)

(a)   Explain XMPP protocol used in IoT communication with block diagram.

(b)   Explain IoT Service as a Platform
      1. Clayster platform
      2. thinger.io

(c)   What are different attacks possible in IOT? Explain the following
      1. Guessing the credentials
      2. Getting access to stored credentials

(d)   Explain HTTP protocol and its working with IOT.

(e)   Explain Node-RED as software tool in IoT.

(f)   What is IOT and what are its features?

Q. 5   Attempt the following (Any THREE)   (15M)

(a)   Discuss the characteristics of SPI. How one can connect Camera module using SPI.

(b)   Explain different security tools in IOT.

(c)   Explain general architecture of an SoC with block diagram.

(d)   Explain the following Linux commands: ls, pwd, cat, tar, unzip

(e)   Explain the working of MQTT protocol in IOT.

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