

(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. _____ command potentially offers a fine-grained choice of permissions for users and groups to access portions of the admin user's powers

(a) grep (b) mkuser (c) sudo (d) ls

2. Which one of the following is not an HTTP Method

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

3. The command _____ sets the last modified time-stamp of the specified file(s) or creates it if it does not already exist.

(a) set date-time (b) set time (c) date-time (d) touch

4. _____ is Tools for achieving security

(a) Virtual Private Networks

(b) TRIG security (c) MQTT (d) DDoS

5. LED stands for

(a) Light Emitting Diode

(b) Light End Diode

(b) Fill in the blanks

{2, Hard Disk , do not connect, cross compiler, do not communicate , 5,10, monitor, connecting }

1. DASH7 provides multi-year battery life, range of up to km.

2. The disadvantage of Raspberry Pi is, it does not have a associated with it

3. The breadboard is a way of electronic components to each other without having to solder them together.

4. In GPIO, DNC stands for .

5. A is a compiler that runs on one platform/architecture but generates binaries for another platform/architecture

(c) Answer in 1 – 2 sentences

1. What is GND in GPIO.

2. State the full form of ASIC.

3. List stages of 3-stage pipeline organisation.

4. What is SenseIoT

5. What is REST ?

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Page 1 of 2

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

- (a) Define Raspberry pi hardware.
- (b) Write a short note on Graphic Processing Unit (GPU)
- (c) What is SoC? Discuss the structure of SoC.
- (d) Explain Compute Unit with block diagram.
- (e) Define steps of configuring boot sequence and hardware.
- (f) Define SoC products and explain FPGA.

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

- (a) Discuss any one Programming interface used with Raspberry Pi
- (b) Write a short note on free open source Raspbian OS.
- (c) Explain the following Linux commands: rmdir ,touch, mv, cp, chmod
- (d) What is node.js? Explain benefits of node.js.
- (e) Define and explain with an example Pulse Width Modulation.
- (f) What is python? Explain its features?

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

- (a) Write a short note on Security tools for IoT.
- (b) Explain XMPP protocol used in IoT communication with block diagram.
- (c) What is the role of CoAP protocol in IOT.
- (d) Write a python program and diagrammatically represent circuit connection to

blink an LED using raspberry pi kit.

(e) Explain the following tools:

1.VPN

2.X.509 certificates and encryption.

(f) Discuss any two real time applications of IoT.

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

(a) Explain ARM8 architecture with block diagram.

(b) Explain following terms:

1.Booth multiplier

2. Register file

(c) Explain IoT security in detail.

(d) Define GPIO programming.

(e) Explain Carriots as IoT service platform in embedded designing.
