

Q.P. Code :19853

[Time: 2 $\frac{1}{2}$  Hours]

[ Marks:75]

Please check whether you have got the right question paper.

- 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)**

a.

1. SoC Stands for

- a. Systematic Output Computing
- b. System on chip
- c. System of Colors
- d. System of computer

2. NOOBS stands for

- a. New Out Put Box Software
- b. New Out Of Box Software
- c. New Out Of Box Service
- d. New Output Box Service

3. Raspberry Pi was invented for.

- a. security purpose
- b. Spy purpose
- c. education purpose
- d. entertainment purpose

4. The Camera in Raspberry Pi can be attached by \_\_\_\_\_ interface.

- a. CSI and USB b. Digital camera c. SLR d. DSLR

5. State true or false "Raspberry Pi does not have any internal memory"

- a. True b. False

b) Fill in the blanks with the help of following pool of options.

{Broadcom chip-specific pin numbers , sudo, touch , chown, sudo, ls, Node RED, Node.js, HTTP }

1. \_\_\_\_\_ command potentially offers a fine-grained choice of permissions for users and groups to access portions of the admin user's powers.
2. The command \_\_\_\_\_ sets the last modified time-stamp of the specified file(s) or creates it if it does not already exist.
3. The \_\_\_\_\_ command changes the user and/or group that owns a file.
4. BCM is also referred to as \_\_\_\_\_.
5. \_\_\_\_\_ is a IoT Service as a Platform.

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c) **Answer in 1 - 2 sentences**

1. What is Sense IoT?
2. What are the different raspberry pi model types?  
State true or false for the following sentence and give a reason for your answer.
3. HTTP protocol works on client server architecture?
4. Node RED is a protocol for communication in IoT?
5. Define Pulse Width Modulation.

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**Q. 2 Attempt the following (Any THREE)**

- a) Explain general architecture of an SoC with block diagram.
- b) Write a short note on FPGA. Mention few advantages of FPGA.
- c) Explore the features of raspberry pi model B in short.
- d) Write the steps to install Raspbian operating system on raspberry pi model B.
- e) Write a short note on graphic processing unit(GPU).
- f) Explain ARM8 architecture with block diagram.

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**Q. 3 Attempt the following (Any THREE).**

- a) Explain the following linux commands: pwd, rm, touch, ssh, ping.
- b) Write a short note on node.js.
- c) Draw the tree components of node.js. Mention few application of node.js.
- d) Explain I<sup>2</sup>C bus as communication interface in raspberry pi model kit.
- e) Explain the use of linux command apt-get to install software in Raspbian model kit with example.
- f) Explain UART as communication interface in raspberry pi model kit.

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**Q. 4 Attempt the following (Any THREE)**

- a) Explain, what is IoT? Give some examples.
- b) Explain HTTP protocol used in IoT communication with block diagram.
- c) Write a short note on Node-RED as software tool used in embedded designing.
- d) Explain Native compiler and Cross compiler with example.
- e) What are the different modes of attacks in IoT based system?
- f) What security measures we can have in IoT communication?

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**Q. 5 Attempt the following (Any THREE).**

- a) How will you connect Raspbian OS with your system? Write the Steps.
- b) Write a short note on free open source Raspbian OS.
- c) Explain XMPP protocol used in IoT communication with block diagram.
- d) Write a short note on Clayster as IoT service platform.
- e) Write a python program and diagrammatically represent circuit connection to blink an LED using raspberry pi kit.

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