S0133 / S2007   PHYSICAL COMPUTING & LOT PROGRAMMING

**1**

[Time: 2**2** Hours]

Q.P. Code :19853

[ 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 SMarks)

 15

a.

            05

1.  SoC Stands for

a.   Systematic Output Computing

b.   System on chip

c.    System of Colors

d.   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.
05

{Broadcom chip-specific pin numbers , sudo, touch , chown, sudo, Is, 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

05

1.  What is Sense loT?

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.

Q. 2        Attempt the following (Any THREE)

15

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.

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

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 I²C 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.

Q. 4    Attempt the following (Any THREE)
                                    15

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?

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

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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