

Note:(1) All questions are compulsory.

(2) Figures to the right indicate marks.

Q. 1 Attempt All Questions.

(15 Marks)

(a) Select correct answer from the following:

i) The Camera in Raspberry Pi can be attached by _____ interface.

(a) CSI and USB (b) Digital camera (c) SLR (d) DSLR

ii) State true or false "Raspberry Pi does not have any internal memory"

(a) True (b) False

iii) _____ is Tools for achieving security.

(a) Virtual Private Networks (b) DDoS

iv) Raspberry Pi needs power supply.

(a) 5 volts (b) 10 volts (c) 15 volts (d) 20 volts

v) _____ the command changes the user and/or group that own a file

(a) chown (b) sudo (c) ch (d) ls.

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

[Clayster, connecting, Universal Asynchronous Receiver Transmitter, HTTP, Undefined Asymmetric Receiver Transmitter, GND, UND]

i) _____ work on request- response architecture.

ii) The bread board is the way of _____ electronic components to each other without having to solder them together.

iii) _____ is a IoT service as a platform.

iv) UART stands for _____.

v) _____ are the pins you use to ground your device

c) Short answers.

i) Define the term Protocol.

ii) What is GND in GPIO.

iii) What is a full form of CISC.

iv) Define APU.

v) What is PWM

Q. 2 Attempt the following (Any Three) :

(15 Marks)

- (a) Explain FPGA
- (b) State the difference between Soc and CPU
- (c) Explain Compute Unit with block diagram.
- (d) Write a short note on Graphic Processing Unit (GPU)
- (e) Explain general architecture of SoC with block diagram
- (f) Define steps of configuring boot sequence and hardware.

Q. 3 Attempt the following (Any Three) :

(15 Marks)

- (a) Define and explain GPIO programming.
- (b) Write a short note on free open source Rasbian OS
- (c) Define Interface? Write a short note on UART.
- (d) What is python? Explain its features.
- (e) Explain the following Linux commands: rmdir, touch, mv, cp, chmod.
- (f) Explain I2C & SPI in detail.

Q. 4 Attempt the following (Any Three) :

(15 Marks)

- (a) Explain HTTP protocol and its working with IoT
- (b) What is IoT and what are its characteristics?
- (c) List any five application areas of IoT and explain any two.
- (d) Explain the need for Interoperability.
- (e) Explain the concept of certification versus decertification.
- (f) Explain XMPP protocol used in IoT communication with block diagram.

Q. 5 Attempt the following (Any Three) :

(15 Marks)

- (a) Explain different security tools in IoT.
- (b) Explain the working of MQTT protocol in IoT
- (c) Explain ARM 8 architecture with block diagram
- (d) Write a python program and dramatically represent circuit diagram to blink an LED using Rasberry Pi kit.
- (e) Draw and explain PWM with Duty cycle.