A10.4-R5.1 : INTERNET OF THINGS (IoT) USING RASPBERRY PI

DURATION : 03 Hours   **MAXIMUM MARKS : 100**

OMR Sheet No. : ⬜⬜⬜⬜⬜

Roll No. : ⬜⬜⬜⬜⬜⬜   **Answer Sheet No. :** ⬜⬜⬜⬜⬜⬜

Name of Candidate : _____ ; **Signature of Candidate :** _____

INSTRUCTIONS FOR CANDIDATES :

- Carefully read the instructions given on Question Paper, OMR Sheet and Answer Sheet.

- Question Paper is in English language. Candidate has to answer in English language only.

- There are **TWO PARTS** in this Module/Paper. **PART ONE** contains **FOUR** questions and **PART TWO** contains **FIVE** questions.

- **PART ONE** is Objective type and carries **40** Marks. **PART TWO** is Subjective type and carries **60** Marks.

- **PART ONE** is to be answered in the **OMR ANSWER SHEET** only, supplied with the question paper, as per the instructions contained therein. **PART ONE** is **NOT** to be answered in the answer book for **PART TWO**.

- Maximum time allotted for **PART ONE** is **ONE HOUR**. Answer book for **PART TWO** will be supplied at the table when the Answer Sheet for **PART ONE** is returned. However, Candidates who complete **PART ONE** earlier than one hour, can collect the answer book for **PART TWO** immediately after handing over the Answer Sheet for **PART ONE** to the Invigilator.

- **Candidate cannot leave the examination hall/room without signing on the attendance sheet and handing over his/her Answer Sheet to the invigilator. Failing in doing so, will amount to disqualification of Candidate in this Module/Paper.**

- After receiving the instruction to open the booklet and before answering the questions, the candidate should ensure that the Question Booklet is complete in all respects.

DO NOT OPEN THE QUESTION BOOKLET UNTIL YOU ARE TOLD TO DO SO.

(Answer all Questions. Each question carries ONE mark)

1. **Each question below gives a multiple choice of answers. Choose the most appropriate one and enter in the "OMR" answer sheet supplied with the question paper, following instructions therein.**

(1 x 10)

1.1 Which function overloads the >> operator ?

(A) more()

(B) gt()

(C) ge()

(D) None of the above

1.2 What is the output of the following program ?

```
i = 0
while i < 3:
        print i
        i++
        print i+1
```

(A) 0 2 1 3 2 4

(B) 0 1 2 3 4 5

(C) Error

(D) 1 0 2 4 3 5

1.3 What is the output of the following program ?

print '{0:.2}'.format(1.0/3)

(A) 0.333333

(B) 0.33

(C) 0.333333:-2

(D) Error

1.4 What is the output of the following program ?

```
i = 0
while i < 5:
    print(i)
    i += 1
    if i == 3:
        break
else:
    print(0)
```

(A) 0 1 2 0

(B) 0 1 2

(C) Error

(D) None of the above

1.5 While executing a command, the shell :

(A) Executes it in the same process (as shell)

(B) Creates a child shell to execute it

(C) Loads a special program to take care of the execution

(D) None of the mentioned

1.6 For every successful login, which script will be executed ?

(A) /etc/inittab

(B) /etc/profile

(C) /etc/login

(D) /etc/init

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1.7 What is the Ethernet/LAN cable used in RPi ?

(A) Cat5

(B) Cat5e

(C) Cat6

(D) RJ45

1.8 What is the default user in Debain on Raspberry Pi ?

(A) Default

(B) User

(C) Pi

(D) Root

1.9 A request from client is basically made of _____.

(A) Method

(B) Task

(C) Event

(D) Signal

1.10 Which of the following UNIX flavor is from IBM ?

(A) BSD

(B) Solaris

(C) HP-UX

(D) AIX

2. **Each statement below is either TRUE or FALSE. Choose the most appropriate one and enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.**

(1 x 10)

2.1 RPi has an internal memory.

2.2 Bootstrap 3 supports Google chrome.

2.3 MAC addresses are very useful in diagnosing network issues.

2.4 The mv command will preserve the meta data of the file

2.5 Modify command is used to update the modification time of a file in UNIX

2.6 Geolocation software is used by host.

2.7 Phones act as actuators too.

2.8 AI is not considered as embedded.

2.9 ARQ stands for Application Repeat Request

2.10 FCP stands for Fast Channel Protocol

3. **Match words and phrases in column X with the closest related meaning / words(s) / phrase(s) in column Y. Enter your selection in the "OMR" answer sheet supplied with the question paper, following instructions therein.**

(1 x 10)

	Column X		Column Y
3.1	Wiring Pi	**A**	HyperText Transfer Protocol
3.2	program written with the IDE for Arduino	**B**	Message Queuing Telemetry Transport
3.3	UART is similar to	**C**	end user
3.4	HTTPS uses post no.	**D**	10
3.5	MQTT	**E**	PIN based GPIO
3.6	NodeMCU has ___bit ADC	**F**	Line for the slave to send data to the master
3.7	A sensor uses	**G**	Flat design
3.8	Application layer interacts directly with	**H**	I2C protocol
3.9	HTTP	**I**	LAN, PAN and HAN
3.10	Bootstrap 3	**J**	12
		K	sketch
		L	80
		M	443

4. Each statement below has a blank space to fit one of the word(s) or phrase(s) in the list below. Choose the most appropriate option, enter your choice in the "OMR" answer sheet supplied with the question paper, following instructions therein.

(1 x 10)

A.	<select>	B.	MAC address	C.	Bringing all devices under a single command	D.	KILL
E.	client	F.	<script>	G.	overhead	H.	method
I.	Ethernet address	J.	3 digit	K.	chgrp	L.	Near Field Communication
M.	Node For Communication						

4.1 _____ command changes a file's group owner.

4.2 _____ signal is sent by the command "kill -9".

4.3 A request from client is basically made of _____.

4.4 Response is made up of a _____ status code.

4.5 WOT reduces _____ of HTTP.

4.6 NFC stands for _____.

4.7 Revolv means _____.

4.8 Hardware address is known as _____.

4.9 The original IEEE 802 MAC address comes from _____.

4.10 The message is sent to the input queue of a message flow that contains a _____.

PART-TWO

(Answer any FOUR questions)

5. (a) Write a Python Program to find sum of square of first n natural numbers

   (b) Write a Python program to swap first and last element of a list.

   (c) Write a Python program to find factorial of given number

   (5+5+5)

6. (a) What is the advantage of open source ?

   (b) How do you change permissions under Linux ?

   (c) How do you share a program across different virtual desktops under Linux ?

   (4+5+6)

7. (a) What is the difference between Urllib and urllib2 ?

   (b) What is Urllib used for ?

   (c) What is the difference between UART and SPI.

   (5+5+5)

8. (a) What does Gpio BCM mean ?

   (b) Which is pin 1 on Raspberry Pi ?

   (c) Differentiate between Intranet and Internet.   **(6+3+6)**

9. (a) What is HTTP POST and HTTP GET ?

   (b) How do you use the GET method in Python ?

   (c) Differentiate between Microcontroller and Microprocessor.

   (5+5+5)

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