Introduction to Internet of Things

Assignment-Week 7

TYPE OF QUESTION: MCQ/MSQ

Number of questions: **15** **Total marks: 15 X 1= 15**

QUESTION 1:

Raspberry Pi is like a mini computer which can perform a wide range of general purpose tasks.

a. True

b. False

Correct Answer: a. True

Detailed Solution: Raspberry Pi devices act just like mini computers and can be configured to perform many things. Refer to the lectures on Raspberry Pi

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QUESTION 2:

What is the complete form of GPIO pins on Raspberry Pi devices.

a. General Public Input/Output

b. Generative Purpose Input/Output

c. General Purpose Input/Output

d. Global Purpose Input/Output

Correct Answer: c. General Purpose Input/Output

Detailed Solution: GPIO stands for General Purpose Input/Output. Refer to any standard documentation on Raspberry Pi. Also visit (https://projects.raspberrypi.org/en/projects/physical-computing/1)

QUESTION 3:

The Python program which you execute on Raspberry Pi to read data from sensors and control actuators has the same syntax and style as any other Python program.

a. False

b. True

Correct Answer: b. True

Detailed Solution It does not matter for what a Python program is written, all Python programs follow the same syntax and style.

QUESTION 4:

During remote server access by a Raspberry Pi, where the Raspberry Pi acts as a client, the client needs the following?

a. Only IP address of server

b. Only port number

c. Both server IP address and port number

d. Client's IP address

Correct Answer: c. Both server IP address and port number

Detailed Solution: A client can communicate with a server only if both IP address and port numbers are known. (Please refer Lecture 31@14:13)

QUESTION 5:

Which among the following are valid data processing activities

a. Data Splitting

b. Data filtering

c. Data plotting

d. All of the given

Correct Answer: d. All of the given

Detailed Solution: As per the basics of Python programming (Please refer to lecture INTRODUCTION TO PYTHON PROGRAMMING- II @19:44).

QUESTION 6:

Consider the following Python code snippet. Assume the syntax is correct and all required libraries are imported

```
var  = 'Sensor@Actuator%Arduino'
pt = var.split('%')
print(pt)
```

What will be the output (See every detail, including the apostrophes carefully)?

a. ['Sensor','Actuator','Arduino']

b. ['Sensor@Actuator','Arduino']

c. ['Sensor','Actuator%Arduino']

d. ['Sensor@Actuator%Arduino']

Correct Answer: b. ['Sensor@Actuator','Arduino']

Detailed Solution: As per Python programming directives and the working of the split function(). Refer Python documentation and Lecture 32@26:00

QUESTION 7:

Which among the following functions do you use while using MATPLOTLIB to add title to a plot?

a. plot()

b. add()

c. label()

d. title()

Correct Answer: d. title()

Detailed Solution: The title(<name_of_title>) functions adds title to a plot while using matplotlib. Refer Lecture 32@12:00

QUESTION 8:

In traditional non software-defined network consisting of a network of switches, suppose OSPF is being used as the routing protocol. In this context which among the following is true.

a. All the switches execute OSPF distributively

b. Only one switch executes OSPF

c. No switch executes OSPF

d. All of these are true

Correct Answer: a. All the switches execute OSPF distributively

Detailed Solution: Traditional networks are distributive, hence all the switches of the network execute OSPF. Refer Lecture 33 from 3:50 onwards.

QUESTION 9:

In SDN, the Operating System (OS) is separated (i.e not strongly coupled) from the physical hardware for each switch.

a. True

b. False

Correct Answer: a. True

Detailed Solution: SDN separates the physical and logical plane of the switch. So OS (part of logical plane) is separated from the hardware (part of the physical plane) for each switch. Refer Lecture 33 from 9:20 onwards.

QUESTION 10:

Which among the following is a popular protocol implementing SDN?

a. OpenSwitch

b. OpenStack

c. OpenFlow

d. OpenEdge

Correct Answer: c. OpenFlow

Detailed Solution: OpenFlow by ONF is the most popular protocol implementing the principles of SDN. Refer to any standard documentation on OpwnFlow.

QUESTION 11:

With respect to Software Defined Networking (SDN), which among the following is true?

a. SDN couples the data plane and control plane.

b. SDN has no relation to either data plane or control plane

c. SDN separates the data plane and control plane.

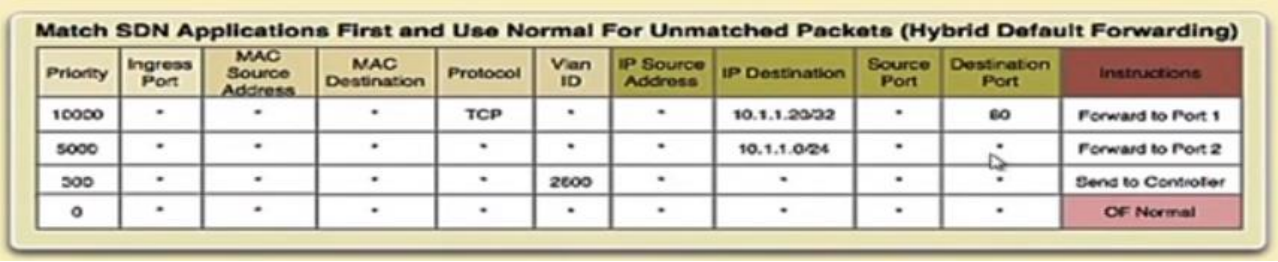
d. None of the stated.

Correct Answer: c. SDN separates the data plane and control plane

Detailed Solution: SDN separates the data plane and control plane. It is the fundamental principle of SDN. Refer Lecture 33 from 12:17 onwards, SDN Architecture.

QUESTION 12:

Consider the following figure below. To which issue of SDN does this particular figure can be related to?



Match SDN Applications First and Use Normal For Unmatched Packets (Hybrid Default Forwarding)

Priority	Ingress Port	MAC Source Address	MAC Destination	Protocol	Vlan ID	IP Source Address	IP Destination	Source Port	Destination Port	Instructions
10000	*	*	*	TCP	*	*	10.1.1.20/32	*	80	Forward to Port 1
5000	*	*	*	*	*	*	10.1.1.0/24	*	*	Forward to Port 2
500	*	*	*	*	2600	*	*	*	*	Send to Controller
0	*	*	*	*	*	*	*	*	*	OF Normal

a. Controller placement issue

b. Flow Rule placement issue

c. Hardware placement issue

d. Analysis placement issue

Correct Answer: b. Flow Rule placement issue

Detailed Solution: The given figures shows the tabular structure of how flow rules are installed within SDN switches, so it pertains to flow rule placement issues. Refer Lecture 33@18:54, Rule Placement.

QUESTION 13:

Suppose that there are two LANs, each configured to be SDN enabled with their own set of switches and controller. Which among the following directional APIs will be used for communication between the two controllers?

a. Northbound API

b. East-Westbound API

c. Southbound API

d. Northeastbound API

Correct Answer: b. East-Westbound API

Detailed Solution: East-Westbound APIs are responsible for communication between different SDN controllers and domains. Refer Lecture 34, APIs in SDN

QUESTION 14:

Which among the following is true?

a. Backup Controllers have no use is SDN

b. There is no difference between the main controller and backup controller

c. Backup controllers take over when the main controller goes down

d. It is not a good idea to keep backup controllers.

Correct Answer: c. Backup controllers take over when the main controller goes down

Detailed Solution: Backup Controllers are required to take over the network control when the main controller fails. Refer Lecture 34@8:24

QUESTION 15:

IoT being data intensive and having a lot of security concerns, it is a good idea to integrate SDN with IoT to mitigate many of these issues.

a. True

b. False

Correct Answer: a. True

Detailed Solution: SDN can be integrated with IoT to reap several benefits of both. Refer Lecture 35.

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