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**NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA**

**(An Autonomous Institute Affiliated to AKTU, Lucknow)**

**B.Tech**

**SEM: VI - THEORY EXAMINATION ( 2022-2023 )**

**Subject: IoT Networks**

**Time: 3 Hours**

**Max. Marks: 100**

**General Instructions:**

**IMP:** Verify that you have received the question paper with the correct course, code, branch etc.

**1.** This Question paper comprises of **three Sections -A, B, & C.** It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.

**2.** Maximum marks for each question are indicated on right -hand side of each question.

**3.** Illustrate your answers with neat sketches wherever necessary.

**4.** Assume suitable data if necessary.

**5.** Preferably, write the answers in sequential order.

**6.** No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.

**SECTION A**

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**1. Attempt all parts:-**

- 1-a. QoE can roughly be classified into these categories\_\_\_\_\_. (CO1) 1
- (a) Perceptual,Pscycological,Interactive
- (b) Conceptual,Pscycological,Interactive
- (c) Perceptual,Economical,Interactive
- (d) Perceptual,Economical,inactive
- 1-b. Any system providing access via the Internet to processing power, storage, software or other computing services it is known as \_\_\_\_\_. (CO1) 1
- (a) Cloud Computing
- (b) Quality of service
- (c) Quality of experience
- (d) None of these
- 1-c. There is no protocol determined yet for\_\_\_\_\_. (CO2) 1
- (a) NFV
- (b) SDN

- (c) Both SDN & NFV
- (d) None of these
- 1-d. The standard way of constructing northbound APIs for SDN controllers is \_\_\_\_\_. (CO2) 1
- (a) REST API
- (b) RST API
- (c) RT API
- (d) None of these
- 1-e. The sensor which is design to detect and respond to movement outside of the component but within the range of the sensor is known as \_\_\_\_\_. (CO3) 1
- (a) Range sensor
- (b) Proximity sesnsor
- (c) IR Sesnsor
- (d) None of these
- 1-f. In Cisco IOS, the IOS stand for \_\_\_\_\_.(CO3) 1
- (a) Internet Operating System
- (b) Internetwork Operating System
- (c) Internet Operating Scheme
- (d) none of these
- 1-g. Find the right statement among the following- (CO4) 1
- 1-The SDN controller did not fits well into the broader concept of a network controller in an NFVI network domain.
- 2-SDN can provide the network virtualization required to support multitenant NFVIs.
- 3-The SDN controller can be run as a VNF
- (a) 1 and 3
- (b) 2 and 3
- (c) 1 and 2
- (d) All of these
- 1-h. SDN can provide the network virtualization required to support multitenant NFVIs.3-The SDN controller can be run as a \_\_\_\_\_. (CO4) 1
- (a) VNFI
- (b) VNF
- (c) VFN

(d) none of these

- 1-i. Among the following which one is not an Essential Network and Computer Security Requirements\_\_. (CO5) 1
- Accountability  
Confidentiality  
Integrity  
availability
- (a) Accountability  
(b) Confidentiality  
(c) Availability  
(d) None of these
- 1-j. OSS stand for \_\_\_\_\_. (CO5) 1
- (a) Opration support section  
(b) Opration secure system  
(c) Opration support system  
(d) None of these

**2. Attempt all parts:-**

- 2.a. What is routing congestion? (CO1) 2
- 2.b. How SDN is better than traditional network? (CO2) 2
- 2.c. How IoT helps the farmers in agriculture? (CO3) 2
- 2.d. Enlist the advantage of virtualization. (CO4) 2
- 2.e. What is API Attacks? (CO5) 2

**SECTION B**

**30**

**3. Answer any five of the following:-**

- 3-a. What are some of the applications of IoT networks in various industries, such as healthcare, transportation, and agriculture? (CO1) 6
- 3-b. What are the different types of mobile traffic? Explain it with the help of the example. (CO1) 6
- 3-c. Write the advantages of SDN and NFV. (CO2) 6
- 3-d. What is REST API? Write the working of REST API. (CO2) 6
- 3.e. Enlist the advantage of CISCO IoT System and also draw the block diagram of CISCO IoT system. (CO3) 6
- 3.f. How do hypervisors impact system performance and resource utilization, and what are the best practices for optimizing hypervisor performance? (CO4) 6

- 3.g. Write the short notes on (CO5) 6  
i- Protocols Attacks  
ii-System Attacks

### SECTION C

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#### 4. Answer any one of the following:-

- 4-a. What are some of the applications of IoT networks in various industries, such as healthcare, transportation, and agriculture? (CO1) 10  
4-b. Draw the architecture of IoT and explain all the layers. Explain what is the purpose of Quality of Service (QoS)? (CO1) 10

#### 5. Answer any one of the following:-

- 5-a. Write the short notes on (CO2) 10  
i- REST API  
ii- Flow table  
iii-Open flow protocol  
5-b. What are the modern networking elements, such as software-defined networking (SDN), network function virtualization (NFV), and network automation, and how do they enable network agility and flexibility? (CO2) 10

#### 6. Answer any one of the following:-

- 6-a. What are the future trends in the Cisco IoT System, such as the use of machine learning and artificial intelligence, and how will they impact the evolution of the system and its capabilities? (CO3) 10  
6-b. What is the IoT Era, and how is it transforming the way we live, work, and interact with technology? (CO3) 10

#### 7. Answer any one of the following:-

- 7-a. What is NFV? Enlist the requirement and Benefits of NFV also explain Distributed architecture in NFV. (CO4) 10  
7-b. What are the main feature of NFV and how we can say that SDN and NFVs are compliments of each others ? Justify your answer. (CO4) 10

#### 8. Answer any one of the following:-

- 8-a. How can SDN be used to detect and mitigate security threats, such as distributed denial-of-service (DDoS) attacks, malware propagation, or data exfiltration? (CO5) 10  
8-b. Write the ETSI Security Perspective and also discuss about NFV-SEC- 003 and NFV-SEC- 004. (CO5) 10