QP code: 10082907

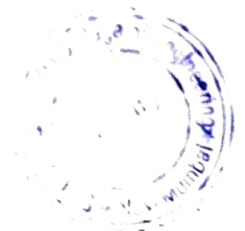BE Sem VIIth CSE(IOT) R-19 CS cheme

Time: 3 Hours

Marks: 80

Instructions:
1) **Question No.1 is compulsory**
2) Solve any four questions from remaining
3) All questions carrying equal marks

Q.1 Solve any four — **20**
i) What is the need of Edge computing in today's world? — **5**
ii) How do the concepts of IIoT and Industry 4.0 interrelate and diverge in driving innovation and transformation within industrial systems? — **5**
iii) Design a comprehensive representation of Edge Computing architecture with its key components. — **5**
iv) Compare between Edge computing Vs Cloud computing. — **5**
v) Enlist the advantages of Virtualization and Containerization in Edge Computing. — **5**

Q. 2 Solve the following questions. — **20**
a) Compare and contrast Edge Computing and cloud Computing — **10**
b) Explain the edge computing security risks and solutions? — **10**

Q. 3 Solve the following questions. — **20**
a) How do IoT technologies enable innovative solutions in healthcare sector? — **10**
b) Explain Resource Allocation Methods in edge computing. — **10**

Q. 4 Solve the following questions. — **20**
a) Discuss the smart city use case inline with the application of edge computing. — **10**
b) Discuss the role of Edge and Fog Computing in the context of the Internet of Things (IoT). — **10**

Q. 5 Solve the following questions. — **20**
a) Explore how real-time data synchronization facilitates collaborative environments in industries such as healthcare, finance, or manufacturing. — **10**
b) How can organizations measure the efficiency and accuracy of edge-based machine learning inference tasks? — **10**

Q. 6 Solve the following questions. — **20**
a) Justify the statement "Fog computing is the future of Industry 4.0". — **10**
b) Examine the challenges of orchestrating containers in dynamic edge environments with varying network conditions. — **10**

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QPCode: 10080338

BE Sem VII th CSE(IOT) R-19 cscheme

[Max Marks:80]

Time: 3hrs

N.B: (1) Question No 1 is compulsory.
       (2) Attempt any three questions out of the remaining five.

                                                                           [20]

Q1. Answer the following

    a. Discuss the different types of cloud disaster recovery.
    b. Explain the key components of Identity and Access Management (IAM)
    c. Define security and explain its importance in cloud computing.
    d. Explain the importance of Intrusion Detection and Prevention Systems (IDPS).

Q2a. How can the principles of cloud data security be explained, and what techniques can be used to mitigate associated risks? **[10]**

Q2b. Compare and contrast Network-Level, Host-Level, and Application-Level security. Provide examples of threats and security measures at each level. **[10]**

Q3a. What is Cloud Security Alliance (CSA), and how does it contribute to cloud security audits and compliance? Discuss its impact on internal policy compliance and risk management. **[10]**

Q3b. What are the key mitigation techniques used in infrastructure security? **[10]**

Q4a. How can the concepts of the CIA Triad (Confidentiality, Integrity, and Availability) be explained in detail within the context of cloud security? **[10]**

Q4b. What are data center security practices, and which techniques are used to ensure protection? **[10]**

Q5a. Describe the IAM lifecycle process and its significance in securing cloud infrastructure. How do IAM standards and protocols contribute to this process? **[10]**

Q5b. Describe the cloud service provider's life cycle approach and its role in managing cloud services effectively. **[10]**

Q6a. Articulate the significance of the 3 R's and 4 C's framework in the context of Cloud Native Security. **[10]**

Q6b. Outline the principles and mechanisms of cloud authorization management, and explain the concept of identity management. **[10]**

BE sem VIIth CSECIOT) R-19 C scheme

Time: 3hrs

[Max Marks:80]

N.B: (1) Question No 1 is compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

Q1. Answer the following [20]

a. Outline the key security considerations in IoT system architecture.

b. Delve into integrating security measures within Agile development practices.

c. Explore the privacy concerns of IoT and outline the associated challenges.

d. How can enterprise IoT effectively track Lots?

Q2a. Illustrate the concept of attack trees by providing an example [10]

Q2b. Describe the process of managing cryptographic keys in the context of IoT security [10]

Q3a. Elaborate on the identity lifecycle of an IoT device. [10]

Q3b. Describe the architecture of Public Key Infrastructure (PKI) as it applies to IoT. [10]

Q4a Outline the principles and components involved in implementing Global Cold Chain Management within enterprise IoT. [10]

Q4b. How does the IoT security lifecycle address implementation and integration processes to ensure a robust security framework? [10]

Q5a. How do compliance standards provide support for IoT, and what specific aspects of IoT do these standards typically address? [10]

Q5b. How are cryptographic controls integrated into IoT communication and messaging protocols to ensure secure data transmission? [10]

Q6a. Define IoT Privacy Impact Assessment (PIA) and outline Privacy by Design (PbD) principles. [10]

Q6b. Discuss integrating safety and security design into Agile development for a robust system. [10]

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Duration: 3 hours
Max. Marks: 80

N.B.: 1) Question No.1 is compulsory.
     2) Attempt any THREE questions out of remaining FIVE questions.
     3) Figures to the right indicates full marks.
     4) Assume suitable data if necessary.

Q1	**Attempt any FOUR of the following**	20
a	What are Mobile Vulnerabilities?	
b	What are different Security Risks for Organizations?	
c	Difference between virus and worm.	
d	How cybercrimes differ from most terrestrial crimes?	
e	Explain the objectives of IT Act 2000.	

Q.2		
a	What is WIPO? List treaties prepared by WIPO.	10
b	Explain about the impact of Cybercrimes in Social Engineering.	10

Q.3		
a	Explain steps for SQL Injection attack. How to prevent SQL Injection attacks?	10
b	Explain E-contracts and its different types.	10

Q.4		
a	What is Cybercrime? Who are Cybercriminals? Explain	10
b	What is e-commerce? Discuss types of e-commerce.	10

Q.5		
a	What are basic security precautions to be taken to safeguard Laptops and Wireless devices? Explain.	10
b	What are illegal activities observed in Cyber Cafe? What are safety and security measures while using the computer in Cyber Cafe?	10

Q.6	**Write short notes on any FOUR**	20
a	Digital evidence	
b	HIPAA	
c	Buffer overflow attack	
d	Planning of cyberattacks by criminal.	
e	Vishing attack	
f	Trojan horse and backdoor	