

BE Sem VIII ESE (TOT) R-19 C scheme

(03 Hours)

Total Marks (80)

Note:

- 1) Question No 1 is Compulsory.
- 2) Answer any three from the remaining questions.
- 3) Assume suitable data wherever required

- Q1. Solve any four of the following (20)
- a. Explain the concept of yield farming and its significance in decentralized finance.
 - b. Explain DeX and compare CeX and DeX.
 - c. Explain the concept of selfish mining and its impact on blockchain consensus.
 - d. What are the key features of ERC 721 Standard?
 - e. Explain the concept AMM with example?
- Q2. a. Explain the significance of different ERC standards in the context of tokenization. (10)
Discuss the functionalities and use cases of ERC-721, ERC-1155, ERC-994, ERC-420, and ERC-809 tokens.
- b. Explain the concepts of Eclipse Attacks and Denial of Service (DoS) attacks in DeFi. (10)
- Q3. a. Explain the concept of DeFi derivatives, compare traditional and DeFi derivatives and provide real-world use case with respect to arbitrage? (10)
- b. Explain DeFi primitives and their role in building complex financial applications within the decentralized finance ecosystem? Explain any two DeFi services? (10)
- Q4. a. Discuss the potential benefits and investment opportunities associated with NFTs. (10)
- b. Draw and explain the layered architecture of DeFi and describe the function of each layer. (10)
- Q5. a. Explain the concept of creating and minting NFTs. Explain popular NFT marketplaces and platforms for buying, selling, and creating NFTs. (10)
- b. What are flash loan attacks, and how have they been used to exploit vulnerabilities in DeFi platforms? (10)
- Q6. a. Discuss the major security threats at the infrastructure and protocol levels in DeFi, including consensus attacks (e.g., 51% attack, double-spending, selfish mining), and smart contract vulnerabilities (e.g., reentrancy, improper authorization). (10)
- b. Explain Popular DeFi Apps Compound (COMP) and PancakeSwap (CAKE)? (10)



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Duration: 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.

- 1 Attempt any FOUR [20]
 - a Explain how blockchain technology can be applied to track weapons throughout the supply chain.
 - b Analyze the current limitations of traditional KYC processes and the impact of manual verification on operational efficiency and customer experience.
 - c Analyze the limitations of current systems in meeting the evolving needs of healthcare data management.
 - d Explain the concept of peer-to-peer energy trading facilitated by blockchain technology among prosumers.
 - e Explore how blockchain technology can create a decentralized and transparent system for recording and transferring property titles, mitigating fraud and disputes.
- 2 a Provide real-world examples or use cases illustrating the benefits of blockchain adoption in finance [10]
b Provide examples of successful implementations or pilot projects of blockchain-based KYC solutions in the finance sector. [10]
- 3 a Discuss the challenges and opportunities associated with integrating drone technology into healthcare delivery systems. [10]
b Examine the potential applications of blockchain technology in pharmaceutical industries and biomanufacturing. [10]
- 4 a Discuss how blockchain can facilitate demand response, grid balancing, and asset management in energy grids. [10]
b Examine how blockchain-based systems improve the efficiency of energy grid management by enabling real-time data monitoring, automated transactions, and optimized asset utilization. [10]
- 5 a Define blockchain-enabled cyber-physical systems (CPS) and their role in integrating physical devices with blockchain technology. [10]
b Evaluate the potential benefits and challenges of adopting blockchain technology in property title management, rental agreements, and cyber-physical systems. [10]
- 6 a Describe the components of the Web3 stack, including blockchain networks, decentralized storage, and distributed computing platforms. [10]
b Explore the security challenges and considerations in the Web3 environment, such as smart contract vulnerabilities and wallet security. [10]



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Time: 3 hrs

Marks: 80

N.B.

- (1) Question no.1 is compulsory.
- (2) Attempt any three questions from the remaining five questions.
- (3) Assume suitable additional data if required.
- (4) All questions carry equal marks.

Q.1

- a) What are the key challenges in implementing AI in Digital Forensics? [5]
- b) Explain the concept of Intelligence-Led Policing and its relation to Forensic Intelligence. [5]
- c) Define the Crime Detection and Prosecution Rectangle. [5]
- d) Briefly explain the four factors contributing to miss rates in AFIS (Automatic Fingerprint Identification Systems). [5]

Q.2

- a) Explain the complete machine learning workflow, including data collection, preprocessing, training, testing, and evaluation. [10]
- b) Explain the different assets (intelligence, knowledge, system) used in police intelligence models, highlighting their relevance in forensic investigation. [10]

Q.3

- a) Explain various Police Intelligence Models and analyze how forensic data serves as a critical intelligence source. [10]
- b) Analyze how truth and probability are considered in case linking using Receiver Operator Characteristics. [10]

Q.4

- a) Explain the importance of crime scene examinations in forensic investigations and discuss the rights related to seizing forensic material. [10]
- b) Explain the role and functioning of DNA databases and environmental DNA (eDNA) in modern forensic investigations. [10]

Q.5

- a) Evaluate the forensic significance of ballistics, physical fits, and manufacturing marks in solving crimes. [10]
- b) Using a case study, explain the procedures and challenges in recovering and analyzing digital evidence from storage devices. [10]

Q.6

- a) Describe the various tools and methods used for intelligent automation in digital forensics. Support your answer with examples like Magnet Axiom or X-Ways Forensics. [10]
- b) Explain the evolution and definition of forensic intelligence, including its origins and integration in intelligence-led policing. [10]



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(3 Hours)

Total Marks: 80

N.B :

1. Question No 1 is **compulsory**
2. Solve **any three** questions from the remaining questions
3. Assume suitable data if required

- Q 1 Attempt any four of the following [20]
- a Evaluate the impact of AR/VR and 3D spaces on the development of immersive virtual classrooms in the Metaverse
 - b How does decentralized commerce within the metaverse leverage blockchain technology to provide users with ownership, security, and control over digital assets?
 - c Describe how NFTs play a role in unlocking new opportunities within the Metaverse.
 - d What role does blockchain play in ensuring digital ownership within the metaverse?
 - e How do AR and VR technologies contribute to the immersive experience of the Metaverse? Briefly explain
 - f List and explain different layers of Metaverse.
- 2 a Explain in detail the building block technologies of the Metaverse and how they will shape the future of the Blockchain, and gaming.?. Discuss. [10]
- b Explain how the Metaverse differs from the traditional Internet? Discuss the potential of the Metaverse to revolutionize industries like gaming, education and list the challenges it may face in terms of technology, regulation, and user adoption. [10]
- 3 a Explain the technical working of the ERC721 standard and its application within the Metaverse. Discuss the advantages and potential limitations of using ERC721 for virtual asset ownership in the Metaverse. [10]
- b How do Blockchain and NFTs create new revenue models, such as play-to-earn economies, virtual real estate trading, and digital art sales? Explain and list the challenges related to scalability, regulation, and market volatility. [10]
- 4 a What is MetaMask, and how does it enable users to interact with Decentral and? Discuss its role in securing digital assets and facilitating transactions in the Metaverse. [10]
- b List the hardware and infrastructure necessary for accessing the Metaverse. Discuss the role of computing devices, networks, and cloud technologies in enabling the Metaverse experience. [10]
- 5 a Explain the differences between VR, AR, MR and XR. How do these technologies contribute to the Metaverse experience? [10]
- b Explain the role of Neuralink and other brain-computer interface technologies in the future of VR, AR, and the Metaverse. List the potential implications for human-computer interaction. [10]
- 6 Write Short Note on any two [20]
- a Fashion Marketing and Finance Industries Disrupted by the Metaverse.
 - b Role of metaverse in the architecture industry
 - c Concept of virtual business and market investment in the metaverse



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Time: 3 Hours

Max. Marks: 80

- Note** (1) Question No.1 is compulsory.
 (2) Out of the remaining attempt any three.
 (3) Assume and mention suitable data wherever required.

Q.1 Solve any Four out of Six.

20

- A. Write comparison between cybercrimes and cyber frauds.
- B. What is Cyber Defamation?
- C. Explain Keyloggers and spyware
- D. What are the measures one can undertake to stay safe in a cyber café?
- E. What are the legal aspects of cyber law?
- F. What are Botnets? How it is exploit by attacker to cause cyber-attack

Q.2

20

- A. How do criminals plan an attack? Describe various steps involved in detail.
- B. Write a short note DOS and DDOS.

Q.3

20

- A. Explain what an e contract is. Describe in detail about Digital and Electronic signatures.
- B. Explain different buffer overflow attacks. How to mitigate buffer overflow attacks.

Q.4

20

- A. What are the objectives and features of Information and Technology Act 2000?
- B. Describe in brief about the intellectual property aspect of cyber law. Explain any four intellectual properties.

Q.5

20

- A. Write a short note on ITA 2008 and its amendments.
- B. Write a short note on Electronic Data Interchange

Q.6 Short note on any Two out of Three.

20

- A. Cyber Stalking
- B. SOX and HIPAA
- C. GLBA and FISMA



BE sem VIII CSE (IoT) R-19 e scheme

Duration: 3 hours

[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.

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|---|---|------|
| 1 | Attempt any FOUR | [20] |
| a | Explain Internet of Things- driver for digital business. | |
| b | Explain different factors that affect consumer behavior | |
| c | Describe the need of security in e-commerce | |
| d | Explain different types of e-business | |
| e | Explain building blocks of mobile commerce . | |
| f | Discuss use of Cloud computing for e-Business. | |
| 2 | a Explain Drivers of digital business-
Big Data & Analytics, Mobile, Social media. | [10] |
| b | Explain Opportunities and Challenges in Digital Business. | [10] |
| 3 | a What do you mean by digital business infrastructure? Name the different
hardware and software that are used in the e-infrastructure. | [10] |
| b | Describe the Components of E-SCM | [10] |
| 4 | a Describe different security attacks. Also explain any one encryption and
decryption technique. | [10] |
| b | Describe the use of firewalls and their types. | [10] |
| 5 | a What is Information System? Explain its Components? | [10] |
| b | Explain the risk and list the steps to manage the risk in the e-business | [10] |
| 6 | a Discuss various Legal, Ethics and Societal impacts of E-commerce | [10] |
| b | Explain selling and buying in private e-markets with respect to business to
business E-commerce. | [10] |



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Time: 3 Hours

Total Marks: 80

Note:

1. Question No.1 is compulsory
2. Attempt any **three** out of the remaining **Five** questions.
3. Assume suitable data if necessary.

- Q. 1. Answer **any FOUR** of the following: (20)
- (a) Describe the key elements that distinguish partnership from other forms of business ownership.
 - (b) Discuss the key regulatory and policy-related issues faced by small and micro businesses.
 - (c) Explain the factors involved in the growth of an Enterprise.
 - (d) State any four unique characteristics of Entrepreneur.
 - (e) Differentiate between Sales Budget and Marketing Budget?
 - (f) What impact do capital markets have on innovation and entrepreneurship in emerging industries?
- Q. 2. (a) What are the risks and challenges associated with each of the four growth strategies? (10)
- (b) Discuss the schemes and incentives introduced under the MSME Act that aim to encourage innovation and technology adoption in small businesses. (10)
- Q. 3. (a) Write short note on Women Entrepreneurship Development with example. (10)
- (b) Entrepreneurs are "Dreamers with vision". State how. (10)
- Q. 4. (a) Discuss role of Capital markets in Entrepreneurial Development. (10)
- (b) Explain in short about Industrial Investment Bank of India Ltd. (IIBI) (10)
- Q. 5. (a) State any four primary activities that are essential for a firm to have a competitive advantage as given by Porter (10)
- (b) Can you state any four features of angel investors that distinguish them from other types of investors? Why are angel investors crucial for the growth of early-stage companies? (10)
- Q. 6. Answer the following. (20)
- (a) Explain the key components of a project report that are necessary for business planning and implementation?
 - (b) How do the activities of an EDP Cell enhance the entrepreneurial capabilities of small and medium-sized businesses?

