

Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
Supplementary Examination, MAY 2023

Course: Crypto Currency	Semester: 6th
Program: B. Tech. (CSE-H+N.H)	Time: 03 hrs.
Course Code: CSBL 3013	Max. Marks: 100

Instructions: (i) Exam is Close Book, (ii) Exchange of mobile phone, calculator or any other item is not allowed, (iii) Start answers to a new question on a fresh page, (iv) All parts of a question should be answered together and (v) Scattered part answers will not be evaluated.

SECTION A

S. No.		Marks	CO
Q 1	What are the three basic crypto primitives, and what is their purpose in ensuring information security?	4	CO1
Q 2	How can the regulation and governance of ICOs impact their success, and what challenges arise from this?	4	CO2
Q 3	How do mixing and altcoins work to preserve anonymity in cryptocurrency transactions, and what are the advantages and disadvantages of each approach?	4	CO5
Q 4	What is the formula for calculating the period of a stream cipher with a given key stream?	4	CO3
Q 5	Critically assess the security of monoalphabetic substitution ciphers, and propose alternative encryption methods that could be used.	4	CO4

SECTION B

Q 6	What role do regulatory bodies and governments play in overseeing token sales and ICOs, and how can they ensure that these sales comply with legal and ethical standards? What measures can issuers and investors take to mitigate the risks associated with token sales and ICOs, such as fraud and market volatility? How can the use of security tokens impact traditional financial markets, and what are the potential benefits and drawbacks of this disruption?	10	CO2
Q 7	What are the ethical considerations involved in information security, and how can one ensure that their security measures align with ethical principles? How can individuals and organizations balance the need for security with the need for privacy in the digital age? What impact do emerging technologies such as artificial intelligence and quantum computing have on information security, and how can one prepare for these changes?	10	CO1

Q 8	<p>What are the key factors that influence the valuation of cryptoassets, and how do traditional financial models and approaches apply to the crypto space? How can asset-backed tokenization be used to create new investment opportunities and improve market liquidity? What are the legal and regulatory considerations associated with tokenized assets and trading markets?</p>	10	CO3 & CO4
Q 9	<p>What are the technical challenges associated with increasing the Bitcoin block size, and how do these challenges impact the overall security and efficiency of the network? How have past attempts to increase the block size been received by the Bitcoin community, and what can we learn from these experiences? How can alternative approaches such as layer-two scaling solutions be used to address the scalability issue in the Bitcoin network?</p> <p style="text-align: center;">OR</p> <p>How do stablecoins work, and what are the advantages and disadvantages of different types of stablecoins? How can stablecoins be used to improve the stability and usability of cryptocurrencies for everyday transactions? What are the risks associated with centralized and decentralized exchanges, and how can these risks be mitigated through security measures and regulatory frameworks?</p>	10	CO4 & CO5
SECTION-C			
Q 10	<p>How can a new cryptocurrency scaling solution be designed to address the specific needs of different use cases and user groups? How can user experience and adoption be prioritized in the design of a scaling solution, and what are the key factors that influence user adoption? What role do governance and community involvement play in the design and implementation of a scaling solution, and how can these factors be leveraged to increase the chances of success?</p> <p style="text-align: center;">OR</p> <p>What are the pros and cons of using mixing and altcoins to preserve anonymity in cryptocurrency transactions, and what are some alternative approaches to achieving privacy and security in blockchain networks?</p>	20	CO3 & CO5
Q11	<p>A. How can sidechains and interoperability be used to address the scalability challenges facing blockchain networks, and what are the limitations of these approaches?</p> <p>B. What are the key differences between sharding and Layer 2 approaches to blockchain scaling, and how can these strategies be combined to achieve greater scalability?</p> <p>C. How might cryptocurrencies be made more accessible to the general public, and what are the challenges involved in achieving mass adoption?</p>	20	CO1,C O2 & CO4