

Reg. No.

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**B. E / B. TECH.DEGREE EXAMINATIONS, MAY 2023**

Sixth Semester

**IT18016 – BLOCKCHAIN FOR BUSINESS**

(Information Technology)

(Regulation 2018)

TIME:3 HOURS

MAX. MARKS: 100

CO1	Explore the components of blockchain.	4
CO2	Simulate the working mechanism of Bitcoin.	3
CO3	Develop business blockchain using ethereum.	6
CO4	Relate blockchain to various real-time use cases.	4
CO5	Build an ethereum DApp.	6

**PART- A(10x2=20Marks)**

(Answer all Questions)

	CO	RBT LEVEL
1. Depict a Centralized and Decentralized system with 10 nodes.	1	3
2. Compare Proof of Work and Proof of Stake consensus mechanism.	1	4
3. Why Genesis block mandatory in any blockchain network?	2	3
4. How hashing ensures data integrity in blockchain?	2	3
5. Is Patricia tree different from Binary Tree? Justify the above statement.	3	4
6. List down the components of an Ethereum transaction.	3	2
7. List down some examples of private blockchain networks.	4	2
8. Compare distributed databases and blockchain.	4	4
9. Differentiate between DApp and Smart contract.	5	4
10. Write the command to create a DApp using geth command.	5	2

**PART- B (5x 14=70Marks)**

	Marks	CO	RBT LEVEL
11. (a) You are the admin of a college and you plan to shift all the student details and marks into a blockchain based model. Summarize the layers and components involved in this implementation.	(8)	1	2
(i)			
(ii) Construct a Merkle Tree with 16 nodes as leaf.	(6)	1	2

(OR)

<b>(b) (i)</b>	The general counsel for election commission has asked you to develop a blockchain based voting mechanism for the upcoming election. Discuss in detail about various consensus mechanisms that can be used for this application.	<b>(8)</b>	<b>1</b>	<b>2</b>
<b>(ii)</b>	Construct a Hash Tree with 16 nodes as leaf.	<b>(6)</b>	<b>1</b>	<b>2</b>
<b>12. (a)</b>	Compare and contrast the data processing abilities of Full nodes and SPV's.	<b>(14)</b>	<b>2</b>	<b>4</b>
<b>(OR)</b>				
<b>(b)</b>	Articulate the history of bitcoin and blockchain with necessary illustrations.	<b>(14)</b>	<b>2</b>	<b>4</b>
<b>13. (a)</b>	Develop a smart contract for Car rental application system. Explicate the steps in the process in detail.	<b>(14)</b>	<b>3</b>	<b>4</b>
<b>(OR)</b>				
<b>(b)</b>	You are building an Ethereum app for home loan application processing system. Illustrate the steps in the development process with its necessary components.	<b>(14)</b>	<b>3</b>	<b>4</b>
<b>14. (a)</b>	Differentiate between various blockchain models available for enterprises.	<b>(14)</b>	<b>4</b>	<b>4</b>
<b>(OR)</b>				
<b>(b)</b>	Compare the development lifecycle of hyperledger blockchain with Corda model and with the relevant advantages and disadvantages.	<b>(14)</b>	<b>4</b>	<b>4</b>
<b>15. (a)</b>	Exemplify the development process of a smart contract for patient registration system with it necessary code.	<b>(14)</b>	<b>5</b>	<b>4</b>
<b>(OR)</b>				
<b>(b)</b>	Illustrate the development process of an online auction Dapp with necessary code.	<b>(14)</b>	<b>5</b>	<b>4</b>

**PART- C (1x 10=10Marks)**

(Q.No.16 is compulsory)

	<b>Marks</b>	<b>CO</b>	<b>RBT LEVEL</b>
<b>16.</b> You have been approached by an attorney who needs you as a fact witness and possibly an expert witness in a criminal case. The attorney has requested you to develop a smart contract application for storing the case details. Design a smart contract with necessary components for the above said application.	<b>(10)</b>	<b>5</b>	<b>5</b>

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