BCM Syllabus for 2nd IA

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| **Unit – II** | **08 Hours** |
| Smart contracts: The concept of a smart contract; Design of a smart contract; Development of smart contract code; Deploying and testing the smart contract; Decentralized airline system use case; Airlines smart contract; Motivating decentralized scenarios; Smart contract design considerations; Best practices | |

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| **Unit – III** | **08 Hours** |
| Techniques for trust and integrity: Essentials of trust and integrity; Implementing trust intermediation; Testing; Establishing trust with modifiers, require(), revert(), and assert(); Best practices  From smart contracts to Dapps: Preliminary concepts; Dapp development using the Truffle IDE; Installing the Ganache test chain; Smart contract development; Dapp web application development; Introspection; Best practices | |

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| **Unit – IV** | **08 Hours** |
| Security and privacy: Deploying smart contracts on Ropsten; Cryptography basics; Application of public key cryptography | |

BCM Question Bank

1. Explain with diagram Cryptocurrency transactions versus smart contract transactions.
2. Explain with diagram Blockchain application stack and layers
3. What are the different functions for Use case diagram for the counter.
4. Compare Class diagram versus contract diagram templates.
5. What makes a blockchain contract smart?
6. Explain in details Operations of participants in a decentralized airline syste.
7. Explain in brief (i) Peer participants, (ii) data assets, (iii) roles, (iv) rules, and (v)transactions
8. What are the Essential components of trust and integrity.
9. Write a short note on Finite state machine diagram.
10. In FUNCTION DETAILS what are the five functions, including the constructor.
11. Explain in details Architectural model of a blockchain network for two processes.
12. Explain the Dapp stack with diagram.
13. Explain with a diagram the Dapp development layers.
14. Explain the Web files and folders in the src directory.
15. Explain in bried Dapp Tx flow from a user via web API, RPC port, smart contract and blockchain with a diagram.
16. Explain with a diagram the Elements of trust and integrity.
17. Explain with a diagram Contract diagram including modifiers.
18. Explain with a diagram, Blockchain application stack and layers