Section A

Total Marks 10
Short Answers
(1 Mark Each)

1. What do you understand by the term blockchain? (1)
2. What are the different types of Blockchains? (1)
3. Why is Blockchain a trusted approach? (1)
4. Is it possible to modify the data once it is written in a block? If no, Why? (1)
5. What is the use cases of Blockchain? (1)
6. Which of the following is first distributed blockchain implementation? (1)
   - Bitcoin
   - Ethereum

7. Hash identifying each block in the Blockchain is generated. Name the Hash. (1)
   - SHA128
   - SHA256

8. Blockchain forks can result in which of the following? (1)
   - Multiple parent blocks
   - Multiple children blocks

9. Each block of a Blockchain consists of which of the following? (1)
   - A hash pointer to the previous block
   - Timestamp
   - List of transactions
   - All of the above

10. What is encryption? What is its role in Blockchain? (1)

Section B

Total Marks 20
Long Answers
(2 Marks Each)

1. What are Smart Contracts and why they are useful? (2)
2. Name the common type of ledgers that can be considered by users in Blockchain? Explain (2)
3. What are the features provided by Blockchain? Explain (2)
4. What is the Consensus mechanism in Blockchain? Name them (2)
5. Explain the difference between Proof-of-Work and Proof-of-Stake. (2)

6. What is a dApp and how it is different from Smart Contract? (2)
7. What is Double Spending? (2)
8. Analyse the below code. Identify the missing part and rewrite the code. (2)

```
//SPDX-License-Identifier:MIT
pragma solidity ^0.8.0;

contract EvenOdd{


    address public manager;

    function oddEvenChecker(uint a) public view onlyOwner returns  (string
memory) {

        uint num = a % 2;

            if (num == 1){
                return "Odd";
            }
            else {
                return "Even";
            }


    }

}
```

Section C

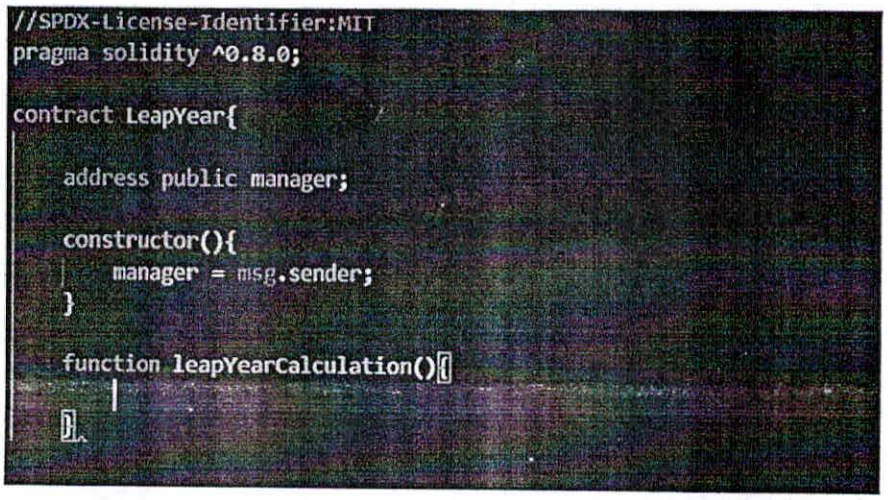
Total Marks 30
Long Answer
(3 Marks Each)

1. Analyse the code given below and answer the following:
   a) Find the errors and explain (1)
   b) Rewrite the code (2)

```
1)  // SPDX-License-Identifier: MIT
2)  pragma solidity^0.8.0;
3)
4)  Contract calculateAge{
5)
6)      Uint Age;
7)      function calculateage pure (uint year)public{
8)          age = 2022 - year;
9)      }
10)     function getage()public returns(uint){
11)         return getage;
12)     }
13) }
```

2. What is Fork and Explain The type of Forks.? (3)
3. Write a simple smart contract of Calculator.? (3)
4. Explain the Types of Blockchain.? (3)
5. What is meant by View and pure & Explain with examples (code) (3)
6. What is meant by Inheritance & explain.? (3)
7. Explain the types of variables with syntax & write a Smart Contract to demonstrate the use of all of them? (3)
8. Explain variable scope with one short example.? (3)
9. Explain Error handling with syntax? (3)
10. Explain consensus mechanism. Explain the mechanisms (3)

9. Analyse the code. This smart contract is to find if the given year is a leap year or not. Complete and rewrite the code. (2)



```
//SPDX-License-Identifier:MIT
pragma solidity ^0.8.0;

contract LeapYear{

    address public manager;

    constructor(){
        manager = msg.sender;
    }

    function leapYearCalculation(){

    }
```

10. Create a Grading System with solidity, with functions, constructor and modifier. Student must be able to enter the marks of 4-5 subjects. (2)

Section D

Total Marks 40
Long Answers
(10 marks Each)

1. Answer the following

a) Explain the working of a lottery dApp. (2)
b) What is the role of the manager here? (2)
c) Create the Contract. (6)

2. Answer the following

a) Why dApp is preferred over traditional applications. (2)
b) Explain the working of a Banking dApp (2)
c) Create a Simple Banking dApp with basic banking features. (6)

3. Explain the following

a) What is an NFT? Explain in brief (2)
b) State a use case of NFT which can be implemented in real world. (2)
c) How many types of NFT's are introduced on basis of its use. (2)
d) What are NFT marketplaces. Name some. (2)
e) What is the process of minting an NFT. (2)

4. Crowdfunding is a popular use case of the blockchain tech.

a) What are the drawbacks of traditional Crowdfunding platforms (2)
b) Explain the working of the crowdfunding Smart Contract. (2)
c) Create the Crowdfunding smart contract. (6)