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Sixth Semester B.E. Degree Examination, June/July 2023

Solidity Programming

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain Block chain and Ethereum architecture with a neat diagram. (10 Marks)
- b. Explain about Merkle root hash strategy. How it is applied to perform transactions in Ethereum with neat diagram? (10 Marks)

OR

- 2 a. Write a short note on Ethereum accounts. (10 Marks)
- b. Define Blocks, genesis block. Explain in detail how an end-to-end transaction takes place in Ethereum. (10 Marks)

Module-2

- 3 a. What is EVM? How does it help to run smart contracts? Explain in detail. (10 Marks)
- b. Give the general structure of a contract. (10 Marks)

OR

- 4 a. Define an Array in terms of solidity. What are the types of arrays and their properties? (10 Marks)
- b. Describe the following messages used in transactions of Ethereum global variables:
 - (i) block.gaslimit (uint)
 - (ii) msg.gas (uint)
 - (iii) tx.gasprice (uint)
 - (iv) block.coinbase (address)
 - (v) msg.sender (address)(10 Marks)

Module-3

- 5 a. Explain the syntax of simple if decision control with 2 or more conditions with sample code. (10 Marks)
- b. Define a constructor with an example. List out the properties of constructor. (10 Marks)

OR

- 6 a. What are Abstract Contracts? Explain how to invoke the functions in abstract contracts with sample code. (10 Marks)
- b. Define Polymorphism. Explain Function and Contract Polymorphism. (10 Marks)

Module-4

- 7 a. Define a Modifier. Write a sample code that demonstrates the concept of modifier. (10 Marks)
- b. Write a brief note on all address functions. (10 Marks)

OR

- 8 a. How are events logged in solidity using Log Function Flow? (10 Marks)
b. Explain in detail about error handling mechanism used in solidity. Explain assert statement. (10 Marks)

Module-5

- 9 a. What is Truffle? How to install it? Justify how it helps to automate the development process. (10 Marks)
b. How is Application Lifecycle Management process important? Describe in steps. (10 Marks)

OR

- 10 a. How do you test a contract using Truffle? (10 Marks)
b. Explain in detail how to debug a contract using Block Explorer. (10 Marks)

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