PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING
MID TERM EXAMINATION - OCT 2023

Semester : Semester V - 2021
Course Code : CSE2020
Course Name : Sem V - CSE2020 - Blockchain Technology and Applications
Program : B.TECH

Date : 30-OCT-2023
Time : 2:00PM - 3:30PM
Max Marks : 50
Weightage : 25%

Instructions:
(i) Read all questions carefully and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and non-programmable calculator are permitted.
(iv) Do not write any information on the question paper other than Roll Number.

PART A

ANSWER ALL THE QUESTIONS (5 X 2 = 10M)

1. What is the use of SHA 256 in blockchain?

(CO1) [Knowledge]

2. What is Hash function & list the properties of Hash Function.

(CO1) [Knowledge]

3. What are the benefits of Merkle tree?

(CO1) [Knowledge]

4. What is script & list the popular opcodes used in bitcoin scripts?

(CO2) [Knowledge]

5. What is bitcoin mining?

(CO2) [Knowledge]

PART B

ANSWER ALL THE QUESTIONS (4 X 5 = 20M)

6. Describe the methods and techniques used to verify the identity of the sender, particularly in the context of blockchain technology and secure communication.

(CO1) [Comprehension]

7. John, a computer science student, is learning about blockchain technology and its fundamental components. He's particularly interested in understanding how hash pointers are used in a blockchain. To help John grasp the concept of hash pointers in the context of a blockchain, could you explain what a hash pointer is and how it is utilized within the blockchain's structure?

(CO1) [Comprehension]

8. Sarah has just received her first Bitcoin transaction, and she's curious about how the Unspent Transaction Output (UTXO) model works in Bitcoin. Could you explain how UTXOs function in the context of a typical Bitcoin transaction?

(CO2) [Comprehension]

9. Sarah is exploring the possibility of starting a Bitcoin mining operation. What factors and considerations should she take into account when evaluating the profitability and feasibility of Bitcoin mining in her location, including aspects related to hardware, electricity costs, and the current state of the Bitcoin network?

(CO2) [Comprehension]

PART C

ANSWER THE FOLLOWING QUESTION **(1 X 20 = 20M)**

10. Your client is considering investing a substantial sum in Bitcoin due to its historical price performance. What limitations and challenges should they consider regarding the long-term investment potential of Bitcoin, and how might these factors impact the value of their investment over time? Provide specific examples or scenarios to illustrate your points.

(CO1) [Application]