



PAN AFRICA CHRISTIAN UNIVERSITY

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

END-OF-TERM EXAMINATION

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY

COURSE CODE: BSIT409

CAMPUS: ROYSAMBU

COURSE TITLE: BLOCKCHAIN TECHNOLOGY

EXAM DATE: DAY OF WEEK, DATE (DDTH MONTH YEAR)

TIME: START HOUR – END 13:00-17:00 HRS

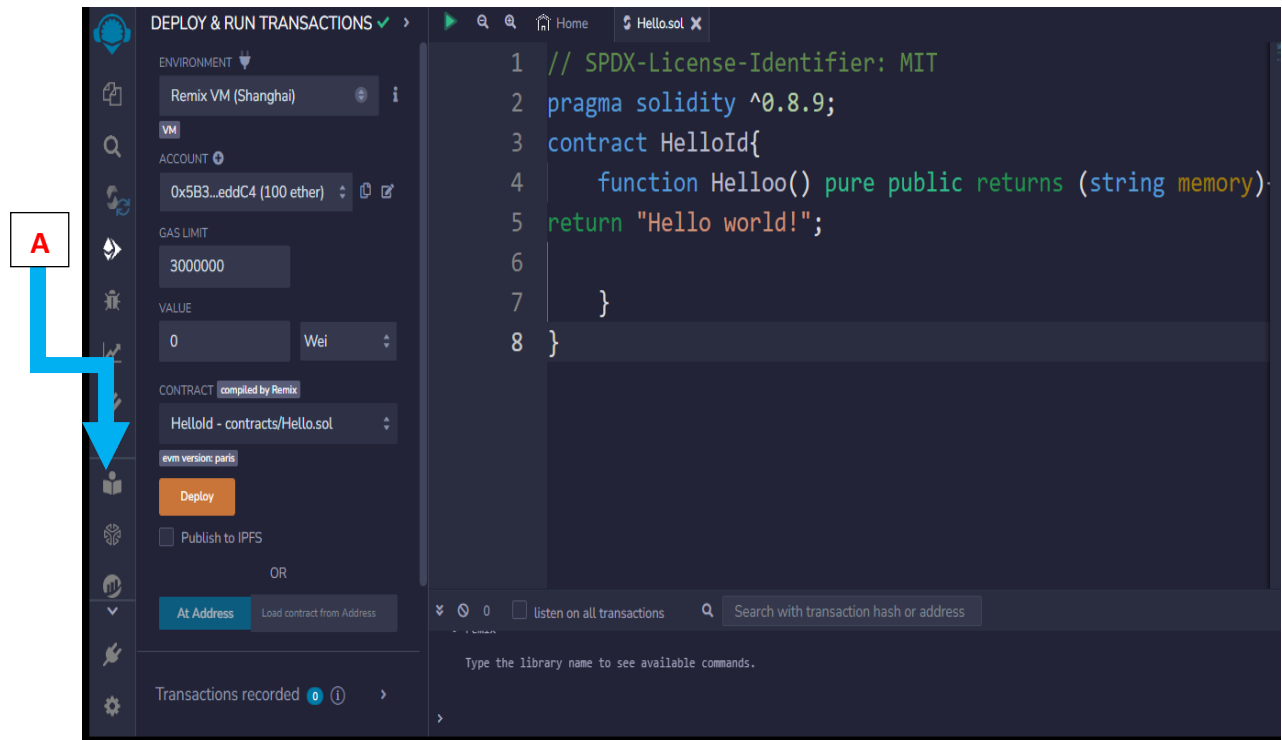
INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other THREE questions in Section **B**.
- Write only your **student number** on the answer booklet provided.
- None programmable calculators permitted
- Calculators on phones, tablets and computers are NOT permitted in Theory Papers

SECTION A: (Answer ALL questions in this section)

Question 1

Use the interface to answer questions a, b, and c below.



- a) Explain the significance of the button labeled 'A' (2 Marks)
- b) Describe the process of transferring 2000 wei from the current account to another account named xyz (2 Marks)
- c) Describe the program shown on the diagram and its probable output (2 Marks)
- d) Explain the concept of sharding as used in blockchain Technology (2 Marks)
- e) State TWO attributes that distinguish blockchain from traditional databases (2 Marks)

QUESTION 2

- a) Highlight FIVE applications areas in which PAC University can leverage blockchain for competitive advantage

(5 Marks)

- b) Describe the concept of P2P networking about blockchain Technology**(5 Marks)**

QUESTION 3

- a) Explain the consensus concept concerning blockchain technology **(2 Marks)**

- b) Justify two consensus algorithms suitable to develop a blockchain-oriented voting system **(2 Marks)**

- c) Explain THREE desirable attributes for a distributed consensus mechanism **(6 Marks)**

QUESTION 4

- a) As a junior systems analyst, expound two scenarios where you would recommend a soft fork over a hard fork **(4 Marks)**

- b) Describe THREE application areas for Zero Knowledge Proof of blockchain-oriented systems **(6 Marks)**

QUESTION 5

- a) Describe the role of EVM in distributed application development **(4 Marks)**
- b) Highlight any THREE methods required in ERC-20 specifications **(6 Marks)**

QUESTION 6

- a) Explain THREE ways a smart contract can influence the healthcare sector **(6 Mks)**

b) Identify FOUR components of a smart contract in the following code snippet

(4

Marks)

```
1. pragma solidity ^0.4.24;
2. contract ColorEnum {
3.   enum Color {RED,ORANGE,YELLOW, GREEN}
4.   Color color;
5.   function construct() public {
6.     color = Color.RED;
7.   }
8.   function setColor(uint _value) public {
9.     color = Color(_value);
10.  }
11. function getColor() public view returns (uint){
12. return uint(color);
13. }
14. }
```