

**WESTMINSTER BUSINESS SCHOOL**

**Module Title: Blockchain Technologies and Cryptocurrencies**

**Module Code: 7FNCE042W**

**Host School of the Module: School of Finance and Accounting**

**Deadline: 13th May 2024**

**Individual Authentic Assessment**

**(Weighted 50%)**

**Assignment**

Q1. Bitcoin

a) Imagine that you are the CEO and have invested 100BTC into a company and run it with your other three business partners Alice (20.00%) and Bob (20.00%), and Coo (20.0%) respectively.

I. If the company uses a bitcoin wallet to store funds, who should control the keys?

II. Is there a solution to this problem?

(5 marks)

b) How can they prove their identity in a)?

(5 marks)

c) Implement the case a) in Python. The screenshot of Jupyter notebook is needed here and the code should be explained step-by-step.

(10 marks)

d) What are centralised, decentralised and distributed? Include a critique of their pros and cons.

(10 marks)

**(Total: 30 marks)**

Q2. Ethereum

a) Critically describe the difference between PoW and PoS in your own words.

(10 marks)

b) Outline the pros & cons of swapping in DeFi and compare its performance in DeFi and in TradFi.

(10 marks)

c) Critically explain the layer 2 solutions in your own words and provide an example of the layer 2.

(10 marks)

d) Mint and describe your NFT collection (at least 3 NFT items in the collection) on the Sepolia/Mumbai Testnet. (You can use the ERC721 smart contract in the Github. Detailed creation process and the properties of your NFTs are needed. The website link of opensea testnets for this collection and smart contract address are required as well.)

(30 marks)

**(Total: 60 marks)**

Note: 10 marks will be awarded based on report writing and presentation. (10marks)

**Overall Total (100 Marks)**

**Assessment Criteria**

This is an individual coursework assignment.

Assessment Weighting is: 50%.

**Word Limit**: 2400 words excluding Title Page, Bibliography and Appendices. Except for quantitative answers, your word total for each answer should be approximately in proportion to the marks awarded to the question.

**Marking criteria:**

* Your marks will be based on your ability to:

- undertake critical financial analysis

- work independently, utilising your own initiative to undertake

the work e.g., finding sources of information, analysing different information

sources in different contexts etc.

-structure, organise, as well as general presentation of your report

-present a clear and concise report

* You are encouraged to make full use of all material available in the University and other sources, such as journals, newspapers, books etc. Any use of any data, reports, etc. should be correctly referenced by using the Cite Them Right Harvard.
* In order to answer these questions, you will need to conduct independent research, learn, and show an understanding of financial analysis. You should apply concepts that you have learnt in the module, and on finance courses in general, when answering these questions.

**Submission Instructions**

Student must submit the assignment via Blackboard by 12th May 2023.

To submit your assignment:

• Log on to Blackboard at http://learning.westminster.ac.uk;

• Go to the relevant module Blackboard site;

• Click on the ‘Submit Coursework’ link in the navigation menu on the left-hand side, as advised by the module teaching team;

• Click on the link for the relevant assignment;

• Follow the instructions.

• You must submit in Word document.

Please note that your submission will automatically be scanned by an automated plagiarism detection software. The University reserves the right to investigate plagiarism and this may affect your marks and studies.

If you submit later than an agreed submission deadline then your submission will be marked in accordance with the current University regulations (if they apply); you may apply for ‘Mitigating Circumstances’ if necessary.