DEC | Institute

CDAA® LEVEL 1
FACTSHEET & SYLLABUS

Preparation and exam tips, keywords from the syllabus and sample questions

Version 1.1

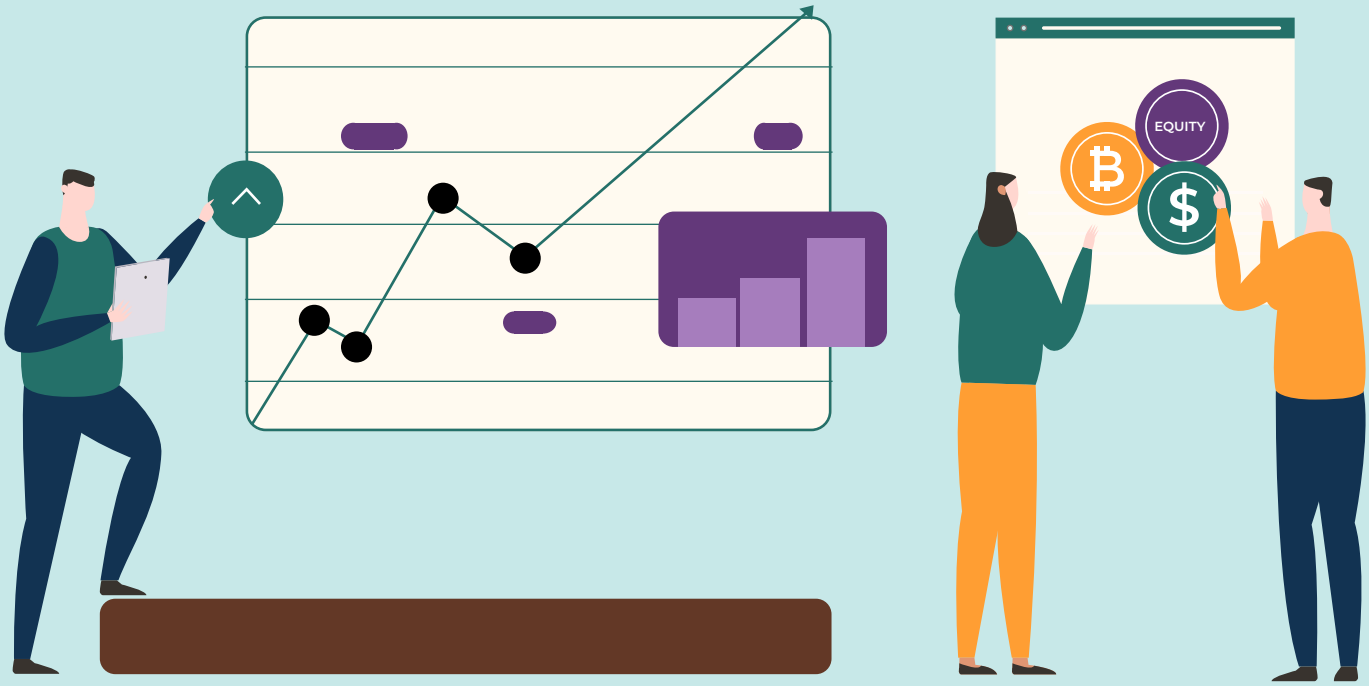
UCL CBT
University College London is #8 in the QS World Ranking

Frankfurt School Blockchain Center
Top 3 Business School & no.1 for Blockchain in Germany

CITY UNIVERSITY OF LONDON EST 1894
One of UK's leading departments in Economics focusing on digital assets

INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY HYDERABAD
India's leading public institution on Blockchain research and innovation

Lucerne University of Applied Sciences and Arts
HOCHSCHULE LUZERN
Information Technology
FH Zentralschweiz
Switzerland's oldest and best in class CAS Blockchain



Factsheet
Chartered Blockchain Expert - CBX® Level 1

Message from the DEC Institute

Well done on taking the first step towards becoming a DEC certified professional. Participating in lifelong learning demonstrates a commitment to professional excellence. The DEC Institute has created an ecosystem of institutions and leading industry players to help guide your personal development as you become a practitioner in the blockchain and digital assets industry. Stay competitive in this fast-paced environment with our collection of professional learning courses and certifications..

Contents

1. Acknowledgement of Exam Syllabus & Parameters

Before attempting the DEC Institute's exam,

1. I confirm that I have read the syllabus, know the exam's scope, and have prepared by studying the topics or learning this knowledge through practical experience;

2. I understand that this exam consists of 75 questions to be completed in 60 minutes;

3. I acknowledge that each of the questions has three options, and only one of them is correct.

4. I understand that for each question, I should pick the option that is the best option (that is most accurate or correct) as some options may be partially correct.

5. I acknowledge that some questions make use of generally well-known abbreviations used in the blockchain industry and that as part of my preparation or work experience, I am expected to be familiar with these.

6. I understand that some questions may be made more complex through the way they are written and worded, and I should endeavour to read all the questions and options in detail not to make easy mistakes.

7. I understand that a good pace for answering exam questions is to spend approximately slightly less than one minute per question.

2. Exam Overview

The DEC Institute currently offers two types of exam, the CBX Level 1 and CDAA Level 1. A summary of relevant information on these examinations is in the table below.

	CBX® Level 1	CDAA® Level 1
Question Format	Multiple-Choice	Multiple-Choice
Exam Duration	60 Minutes	60 Minutes
Number of Questions	75	75
Exam Results Availability	Emailed within 1 hour of finishing the exam online	Emailed within 1 hour of finishing the exam online
Pass level	75%	75%
Test attempts per order	2	2

3. Familiarising Yourself with the DEC Exam Topics

The DEC Institutes exam's curriculum focuses on a wide range of knowledge related to three topic areas of Technology, Business / Economics and Legal / Regulatory. The exams cover these topic areas with the following approximate weights:

	CBX® Level 1	CDAA® Level 1
Technology	45%	30%
Business / Economics	35%	35%
Legal / Regulatory	20%	35%

4. Curriculum Topics across CBX® and CDAA®

Technology: In this section, we explore how blockchain and Distributed Ledger Technology operate at a fundamental level. This includes understanding blockchain architecture, consensus mechanisms, cryptography, major blockchain solutions, different types of tokens, DApps and other topics. There is also some testing of technical knowledge of blockchain script and smart contract code.

Business / Economics: This section explores a more practical application of how blockchain and Distributed Ledger Technology is applied within our world. We cover stakeholders in the blockchain ecosystem, how blockchain relates to the Internet, enterprise blockchain solutions, tokenomics, blockchain applications across different industries and the topics of innovation and disruption as applied to blockchain.

Legal / Regulatory: In this section, we focus more in-depth on the legal and regulatory treatment of blockchain on a principles-based approach and more specific treatment of it in various major jurisdictions across the world. We cover different blockchain applications' legal status in multiple jurisdictions (Americas, Europe, Asia), why blockchain is challenging to regulate and how it fits in with current regulatory regimes.

For greater detail, see all the topics tested in the syllabus presented later in this document.

5. Keeping the Curriculum Relevant and Rigorous

The DEC Institute has consulted both its Academic members and its Industry Partners to create the examinations. This is to make sure that the foundation knowledge necessary to be a practitioner in the blockchain industry and the latest topics relevant to the industry today are covered. For more information on the various academic and industry members of the DEC Institute, please have a look at our website.

6. Understanding the Multiple-Choice Exam Question Format

Each multiple-choice item on the DEC Institute's Level 1 exams consists of a question or a statement and three answer choices.

It is expected that you spend between 30 and 120 seconds per question on the exam. Some questions may require more time, and some less.

Two formats are used, which are:

1. Questions with three unique choices
2. Sentence completion with three unique choices

These two formats are formats are divided between longer and shorter questions concerning the length of the question. Example questions are in Section 10.

7. Exam Tipps

The DEC Institute does not currently have any materials that it offers for candidates to study for these exams. We recommend the various courses offered by our academic members and those created by our Industry members that usually go into depth on their technologies. Some of the recommended courses are:

1. Make sure you have gone through the syllabus and are familiar with the topics you will be tested on.

2. Read each question and each of the options carefully. Some questions are designed to be more complicated based on how they are written – be particularly careful when picking your answers for these.

3. You have 60 minutes to complete the exam – make use of your time! If you finish the exam with time to spare, make sure that you go back and check your answers.

4. Make use of the question flagging system to go back and check any questions that you were not entirely sure about.

5. Always pick the most accurate option as some options may be partially correct, but only one option is entirely correct.

8. How To Prepare

The DEC Institute is currently offering preparation materials that consist of resources on each of the high-level topics of the exam. These resources are academic papers, blog posts, industry reports, news pieces and videos that cover many elements of the knowledge tested. In addition to this, we also recommend various courses offered by our academic members and those created by our Industry members that usually go into depth on their technologies. Some of the recommended courses are:

Course provider	Course	Reference	Focus
Lucerne University for Applied Sciences and Arts – Information Technology	Certificate of Advanced Studies (CAS) – Blockchain (German)	https://www.hslu.ch/de-ch/informatik/weiterbildung/digital-value-creation/cas-blockchain/	CBX®
Lucerne University for Applied Sciences and Arts – Information Technology	Certificate of Advanced Studies (CAS) – Crypto Finance & Cryptocurrencies (German)	https://www.hslu.ch/de-ch/wirtschaft/weiterbildung/cas/ifz/crypto-finance-and-cryptocurrencies/	CDAA®
Frankfurt School of Finance & Management – Blockchain Center	Certified Blockchain Expert(English)	https://execed.frankfurt-school.de/en/home/individuals/it-digitalisation/certified-blockchain-expert	CBX®
Frankfurt School of Finance & Management – Blockchain Center	Blockchain Masterclass (German)	https://www.frankfurt-school.de/home/research/centres/blockchain	CBX® CDAA®
Frankfurt School of Finance & Management – Blockchain Center	Digital Assets: Seminarreihe zu Blockchain und Digitalisierung für Führungskräfte (German)	https://www.ifb-group.com/veranstaltungen/details/detail/News/digital-assets-seminarreihe-zu-blockchain-und-digitalisierung-fuer-fuehrungskraefte/	CDAA®
University College London – Centre for Blockchain Technology	Introduction to Blockchain and Distributed Ledger Technology (English)	https://www.futurelearn.com/courses/demystifying-blockchain	CBX® CDAA®
International Institute of Information Technology - Hyderabad	Advanced Certification Program in Blockchain and DLT (English)	https://iiit-h.talentsprint.com/blockchain/index.html	CBX®

9. Misconduct & Anti-Cheating Declaration

Engaging in any form of misconduct whilst attempting this exam may lead to the voiding of your exam results and termination of your ability to take DEC Institute exams in the future.

Exam misconduct is considered any conduct or activity that compromises or attempts to compromise the integrity, reputation, security or validity of the DEC Institute's exams. This includes conduct that occurs during registration and after that in the period before, during and after taking the DEC Institute's exams.

Misconduct includes, but is not limited to:

1. Giving or receiving assistance from others when completing the exams.

2. Taking screenshots, photos or notes on the exam questions and answers when completing the exams.

3. Sharing any details on the questions and answers of the exams with others.

4. Taking part in the act of impersonation or other forms of cheatings.

5. Utilising unauthorised DEC Institute exam questions, with or without answers, when you are in the process of preparing for or completing the exam.

6. Sharing or requesting others to share with DEC Institute exam content in any form

7. Using any form of mobile phone, camera, headset, tablets, computers, wearable devices, photographic devices or other devices that seek to give an advantage or to copy materials from the exam (except for the device on which you are taking the exam under exam conditions).

8. Utilising unauthorised DEC Institute materials that you know or have a reasonable basis violate the DEC Institutes copyright

9. Copying, distributing, reselling or misusing any DEC Institute exam offer codes or discounts.

10. Misrepresenting information at registration.

11. Any other conduct that could be considered by the DEC Institute (at its sole discretion) to compromise the integrity, validity, reputation or security of the DEC Institute's exams or the DEC Institute.

10. Example Questions

Example 1: Question (Short length)

Which of the following Ethereum token types supports non-fungible tokens?

A. ERC20
B. ERC721
C. ERC221

Example 2: Question (Long length)

Within the blockchain ecosystem, there are two types of exchanges: centralised exchanges and decentralised exchanges. Which one of the following statements correctly describes the differences between a centralised exchange and a decentralised exchange?

A. A. A centralised exchange always writes executed trades to a blockchain, whereas a decentralised exchange does not
B. A centralised exchange often uses market makers, whilst decentralised exchanges only use order books
C. A centralised exchange is order book based, whilst a decentralised exchange uses liquidity pools

Example 3: Sentence completion (Short length)

Central Bank Digital Currencies can:

A. Only operate on Distributed Ledger Technology
B. Only operate in some countries if the law is changed to accommodate them
C. Only operate successfully in a wholesale setting

Example 4: Sentence completion (Long length)

Consortia have been created in certain industries to facilitate blockchain adoption as they can potentially overcome the coopetition paradox. In the context of blockchain, the coopetition paradox refers to

A. The necessity to compete in an industry where there are strong cooperations
B. The necessity for cooperation to occur in an industry where there is intense competition
C. The fact that blockchain solutions can only be successfully implanted in industries if consortia are used

Appendix 1 – Detailed Exam Syllabus CDAA® Level 1

A1 - Technology

1. Blockchain Principles

- Understand what the properties of a blockchain system are, which include

A. Inmutability

B. Transparency

C. Security

D. Privacy

- Know what the Double Spending Problem is.
- Understand how blockchain solved the Double Spending Problem.

2. Blockchain History

- Know the history of blockchain technology and the context of when it was created.
- Know examples of previous attempts to solve the Double Spending Problem with respect to cryptocurrencies including:

A. B-Money

B. Hash Cash

C. Bit Gold

- Understand how Bitcoin succeeded whilst previous attempts at creating a cryptocurrency failed.

3. Blockchain Architecture

- Identify different network topologies including:

A. Centralised

B. Decentralised

C. Distributed

- Identify different governance structures including:

A. Open

B. Closed

C. Permissioned

D. Permissionless

- Identify the different layers in a blockchain nodes are including

A. Protocol layer

B. Network layer

C. Aplication/Data layer

- Identify different network topologies including:

A. Archive nodes

B. Full nodes

C. Light nodes

D. Validating nodes

E. Mining nodes

- Understand the role of miners in a blockchain network.
- Understand the importance of interoperability for blockchain networks.
- Know the difference between blockchain Interoperability and Intraoperability.
- Understand what is meant by the term sharding.
- Understand what layer two solutions can mean for blockchain infrastructure and use cases.
- Understand the trilemma and tradeoffs between scalability, security and decentralization in a blockchain network.

4. Privacy

- Understand different concepts of privacy as related to blockchains including:

A. Pseudonymity

B. Zero knowledge Proofs

C. Identity

5. Wallets

- Understand how blockchain wallets work.
- Know the difference between storing keys vs storing coins (UTXO,...).
- Know the difference between custodial, non-custodial and semi-custodial (multisig) wallets.
- Understand the difference between hot vs cold wallets.
- Know the differences between Mobile, Web and Desktop wallets.
- Understand what Hardware Security Modules and Vault Services are.

6. Tokens

- Know what a native token are.
- Identify different token types.

7. Cryptocurrencies

- Know the differences between tokens, coins and cryptocurrencies.
- Understand how a cryptocurrency transaction occurs.
- Understand how cryptocurrency transaction is mined utilizing:

A. Pow

B. PoS

- Know what the functions of exchanges are.
- Understand the different types of exchange that are possible including:

A. Fiat to crypto

B. Crypto to crypto

- Know what a blockchain fork is.
- Know what a sidechain is.

8. Asset-Registry Technologies

- Know what asset-registry technologies are including:

A. Non-fungible tokens

B. Colorcoins

9. Asset-centric technologies

- Know what asset-centric technologies are including:

A. Payment rails - XRP

- Understand where asset-centric technologies can be applied.

10. Applications Stacks

- Know what application stacks are.
- Know what a smart contract is.
- Understand applications of smart contracts.
- Know what the principles of a smart contract are including:

A. Observable

B. Enforceable

C. Verifiable

- Understand how smart contracts function on Ethereum including Turing completeness and gas.

- Know what smart contract tokens are including ERC-20.
- Understand how smart contracts can be used for governance.
- Understand how smart contracts can be used for token movement and escrow.
- Know what is meant by on- and off-chain storage.
- Understand the blockchain storage problem.
- Understand how off-chain logic is implemented to enhance blockchain transactions.
- Know what an ICO is.
- Know what a DAO is and how it operates from a technology perspective.
- Understand the main issues of the DAO hack.

11. DApps

- Know what DApps is.
- Understand what the difference are between a DApp and a normal app.
- Understand the difference between a DApp and Smart Contract.

A2 - Business/Economics

1. Blockchain Investment

- Know what the scale of investment into various sectors blockchain is being deployed in.
- Understand the different ways in which capital is raised in the various sectors blockchain is deployed in.

2. Blockchain Economics

- Know what the different charging and rewarding systems used by blockchain networks are including:

A. Rewards systems

B. Fee systems

- Understand the economics of mining.
- Know what different strategies miners may use are.
- Know how Mining Pools operate.

- Know what monetary and macroeconomic effects of cryptocurrencies are including:

A. Money and its properties

B. Hayek theory

- Understand how cryptocurrencies can improve market inefficiencies.
- Know how blockchain can synchronizing the flow of goods, the flow of money and accounting.
- Understand various methods of valuing crypto assets.
- Understand how to assemble a portfolio of crypto assets.
- Understand how crypto assets can diversify traditional asset portfolios.
- Understand what is meant by Annual Percentage Yield (APY) and Total Value Locked (TVL) in DeFi.
- Understand what tools are available for interacting with DeFi, including Decentralised Exchange (DEX) Aggregators.

3. Token business models.

- Understand the basic principle of tokenization.
- Understand the difference between utility, security and native tokens.
- Apply utility, security and native tokens to appropriate business cases and models.
- Identify different application areas of tokenisation including:

A. FIAT settlement (stablecoins)

B. Real estate

C. Commodities

D. Intangible goods (ownership, rights,...)

- Understand the token container model as a basis for the digital economy.
- Know about standard setting for token markets.
- Apply a taxonomy of tokens to classify and standardize tokens including features such as:

- Business Classification

- Legal

- Technical

4. Business opportunities for Cryptocurrencies

- Understand how cryptocurrencies can be used as a payment rail for business, enterprise and by consumers.
- Know how hardware wallets can be used by businesses and consumers.

- Understand the importance of multsig for certain business applications of blockchain.
- Know what custody and a custodian is.
- Understand issues related to custody.
- Understand how Crypto exchanges operate.
- Know how Decentralised Exchanges operate.

5. Blockchain and Sustainability

- Know how blockchain can help facilitate ESG.
- Understand sustainability issues related to blockchain.

6. ICOs & IEOs Capital Raising

- Identify what circumstances may be useful for a business to ICO.
- Know what the risks of ICOs are and their main legal issues.
- Understand the differences between ICOs and IEOs.
- Understand what is meant by the term airdrop and why they are used.

7. Application Areas of Blockchain

Financial Services

- Banking and lending

A. Stablecoins

B. Lending

C. Banking

- Wealth and asset management

A. Custody

B. Identity and data

C. Investing and indexing

D. Tokenisation platforms

- Capital Markets

A. Prediction markets

B. Derivatives

C. Trade Data and Execution

D. Post Trade Settlement

Payments

- Cash on Ledger
- Micropayments
- Remittances
- CBDCs
- Merchant services, remittances, cross-border, consumer, Bill service, M2M, IoT
- Exchange: brokerage service, order-book exchange, OTC, Decentralized, ATMs

Insurance

Real Estate

DeFi (Decentralised Finance)

A3 - Legal & Regulatory

1. Legal and Regulatory Treatment of Cryptoassets

- Know what the regulatory and legal standing of blockchain technology is with respect to and in various jurisdictions:

A. Switzerland
B. Singapore
C. China
D. UK
E. USA
F. EU

- Know about the Liechtenstein Blockchain Act.
- Understand the arguments for why cryptoassets could or could not be considered as legal tender.
- Know whether cryptoassets can be considered as financial instruments in relation to MiFID II regulation.
- Understand taxation issues related to crypto assets.
- Understand the regulatory issues related to stablecoins and their macroeconomic impact.
- Understand the legal qualification of different token types including:

A. Debt
B. Utility
C. Security

- Know the regulatory aspects of exchange and wallet providers.
- Basics of AML/KYC and criminal law aspects of cryptoassets including:

A. Cryptoassets, money laundering and international organized crimes.
B. Cryptoassets and market abuses (e.g. market manipulation).
C. Blockchain technologies and blockchain forensics.

- ICO/IEO versus IPO and crowdfunding: legal and regulatory differences.

A. Legal and regulatory perspectives on ICOs in various jurisdictions.
B. Best practices legally/regulatorily when doing an ICO.
C. Regulatory aspects of exchange (and wallet) providers. How their nature might reflect on the legal qualification of crypto assets and ICO/IEO.
D. Exchange providers and their qualification inder MiFID II (OTF, MTF).

2. Regulatory and Legal Standing of Blockchain Technology

- Know what the regulatory and legal standing of blockchain technology is with respect to and in various jurisdictions:

A. Protocols
B. Network
C. Applications
D. Governance

- Understand the issue of digital lock-in and the problem of interoperability with blockchains.

3. Legal Status of Smart Contracts

- Understand whether smart contract code is law.
- Know how smart contracts are treated in various jurisdictions including:

A. UK
B. Switzerland
C. Singapore
D. USA

- Know the legal treatment of transaction costs and ex post legal remedies in relation to smart contracts.
- Understand the flexibility and general clauses (e.g. bona fide) within smart contracts.

4. Challenges of Regulating DLT

- Understand why it is not trivial to regulate and legalise blockchain technologies.
- Know the difference between rules-based and principles-based regulation (regulation vs soft regulation)

5. Blockchain, Competition Law and Antitrust

- Understand how blockchain can amplify the risk of collusion/cartels to monopolization/abuse of dominance position conduct.
- Understand the foundation of distributed undertaking under antitrust law.

6. Blockchain Best Practices for Legal and Regulatory Issues

- Know broadly the different legal and regulatory issues with blockchains and DLT and how to deal with them.

7. Blockchain and Regtech

- Know why blockchains are a good technology for automating and streamlining regulation and compliance.
- Understand pros and cons of adopting public or private blockchains in the government and public sector.
- Understand the advantages and disadvantages of blockchain-based compliance reporting systems versus current systems.
- Know use cases for continuous auditing, AML/KYC verification, automated tax filing etc.

8. Regulatory and legal perspectives of DAOs

- Know how a DAO differs legally from a Corporation.
- Understand what the ethical issues related to DAOs are and with the DAO attack.
- Understand about corporate governance issues with DAOs.

9. Blockchain and Intellectual Property

- Know about blockchain patentability.
- Understand how blockchain code can be protected as a software.
- Know about open-source licenses for blockchain code.
- Understand the relationship between trade secrets, hashed data and blockchain technologies.

- Understand the intellectual property protection of hashed or transactional data.
- Know about the relationship between the transparency requirements ex MiFID II and blockchain IP

Disclaimer

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