



# **DARK WEB FOUNDATION**

## **Sample Exam**

## Exam information

The SECO-Institute offers its official Dark Web Foundation courseware through accredited training centres where candidates are trained by accredited instructors. Candidates can take their exams at an accredited exam centre or book an exam directly with the SECO-Institute.

Attending a course is not a prerequisite for taking an exam.

### Examination type

- Computer-based
- 40 multiple-choice questions

### Type allotted for examination

- 60 minutes

### Examination details

- Pass mark: 60% (60 points out of 100 points)
- Open book/notes: not permitted
- Electronic equipment: not permitted

Rules to be observed by candidates: The SECO-Institute's Examination Rules and Regulations

(<https://www.seco-institute.org/html/filesystem/storeFolder/10/General-Terms-and-Conditions-for-participation-in-SECO-Institute-exams-2017-11.pdf>)

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## Questions



### Question 1

What is the best description of the Clear Web?

- A. The part of the internet that is accessible to all internet users.
- B. The part of the internet that lacks any cryptographic technologies.
- C. The indexed internet pages that are visible to any internet user.
- D. The part of the internet where no criminal activity takes place.

### Question 2

Who took over the TOR project in 1997?

- A. Interpol
- B. No one, it became open-source
- C. ARPA
- D. MIT

### Question 3

Richard starts a single-vendor marketplace to sell his merchandise. What pitfall should he be aware of?

- A. He is not sharing the risk of potential vulnerabilities in his server(stack).
- B. He may attract the wrong customers.
- C. If a bug is found on his website, he will suffer reputational damage.
- D. He has to invest too much time in keeping his site up to date. If he participated in a shared market, the administrator would take care of that.

### Question 4

Which were (or are) well-known Dark Markets?

- A. Silk Road, BetaBay and Hansa.
- B. Silk Road, AlphaBay and Hansa.
- C. Velvet Road, AlphaBay and Hansa.
- D. Purple Rain, Bayonet and Hansa.

**Question 5**

What does “router” refer to in Tor?

- A. A router functionality, just like your router at home.
- B. Routing through a network of nodes.
- C. The shortest path algorithm used by Tor.
- D. The use of TCP/IP protocols.

**Question 6**

Which node on the Tor network is exposed to the most risk?

- A. The exit node. Since the exit node sends the ultimate request to the server, it is the most exposed to the risk of being discovered or banned by a provider.
- B. The rendezvous node. Since the rendezvous node communicates with both the entry node and the exit node, it receives the most communication, and therefore is the most exposed to the risk of being banned by a provider.
- C. The entry node. Since the entry node is connected to the original requestor, a provider can spot the Tor connection and the entry node becomes exposed to the risk of being banned.
- D. All nodes are exposed to the same level of risk.

**Question 7**

Henry wants to become a vendor on a Dark Market, but he has security concerns. He is vacillating between a market called SesameCave and a market called BlackRain. SesameCave requires users to log in to the website with their username and password, and thereafter enter a random code that is generated on their phone. BlackRain requires users to generate a 4-digit pin code at registration, and use that pin code to log in to the website. Which market should Henry choose and why?

- A. SesameCave, because it uses a random number generator.
- B. BlackRain, because pin codes provide added security.
- C. BlackRain, because a pin code that was set up at registration improves authentication security.
- D. SesameCave, because it uses multi-factor authentication.

**Question 8**

Dark Market players engage in both business-to-business (B2B) and business-to-consumer (B2C) activities. What percentage of all sales do B2C sales represent on Dark Markets?

- A. 0.6 %
- B. 70 %
- C. 30 %
- D. 0.25 %

**Question 9**

Alice wants to have more privacy on the Tor network. What can she do?

- A. Configure Tor to change its routing path every 5 minutes.
- B. Change the number of nodes in the route to 3.
- C. Generate a new private key.
- D. Configure Tor to change its routing path every 15 minutes.

**Question 10**

What can you do to increase your privacy when connecting to the Tor network?

- A. Make sure nobody is close by.
- B. Use a public network, for example the network of your favourite fast-food place, to connect to the Tor network.
- C. Use a VPN service for added privacy.
- D. Become an exit node.

**Question 11**

How does PGP help in creating an anonymous but trustworthy profile?

- A. PGP provides a so-called "Web of Trust": the more people sign the public key, the stronger the verification.
- B. PGP does not help in creating trustworthy profiles.
- C. By making the private key public, so people can verify it.
- D. By anonymising the key exchange through asynchronous communication.

**Question 12**

You receive a hash value. What do you need to do if you want to translate it to the original value?

- A. Find the public key.
- B. You cannot reveal the original value.
- C. Find the private key.
- D. Find the shared key.

**Question 13**

What is a disadvantage of opening a single-vendor marketplace compared to joining a Dark Market?

- A. No refund policy, less uptime.
- B. No escrow, more difficult to receive payments.
- C. No escrow, less anonymity and marketing disadvantages.
- D. There is no downside.

**Question 14**

What is the main factor that enables law enforcement to catch criminals who operate on the Dark Web?

- A. Bugs in the Tor software
- B. Bitcoin transactions
- C. Undercover operations
- D. Human error

**Question 15**

What would be a good starting point for browsing the Deep Web?

- A. Google and DuckDuckGo
- B. Pastebins and Reddit
- C. DeepDotWeb.com and Wikipedia
- D. Twitter and Wikipedia

**Question 16**

Why is it relatively easy to scrape Dark Markets?

- A. Good website structure is crucial for any business. Easy scraping is a side effect of having a good structure.
- B. Scraping is anonymous, so administrators cannot prevent it.
- C. This not true. Scraping Dark Markets is just as hard as scraping any other website.
- D. The structure of the Tor protocol allows for easy scraping.

**Question 17**

Looking at Torflow, we see a lot of bright white spots in Western Europe and in the U.S. Why is that?

- A. A lot of criminals live in those countries.
- B. In those countries, police run a lot of fake nodes.
- C. Those countries are generally more tech-savvy.
- D. Those countries have a history of valuing the freedom of speech.

**Question 18**

Operation Onymous was a joint law enforcement action targeting Dark Markets and other hidden services. Although it is still questionable whether evidence gathered during Operation Onymous can be used in court, the operation had a significant positive effect. What is that effect?

- A. Tor users fled the network.
- B. Several criminal enterprises were disrupted.
- C. A lot of money was confiscated.
- D. It became possible to create a temporary backdoor on the Tor network.

**Question 19**

What is a .onion address?

- A. An address that points to a hidden service.
- B. A web address with information on the Tor network.
- C. A place where you can download Tor.
- D. A private address that is generated upon connecting to Tor.

**Question 20**

Why is Bitcoin pseudo-anonymous and not completely anonymous?

- A. The keys are linked to your identity.
- B. Everybody can see the contents of your wallet.
- C. The transactions are public and completely transparent.
- D. Miners can retrieve personal information.

**Question 21**

What is a block in Blockchain technology?

- A. A bag of value.
- B. Value created by miners.
- C. A hash pointer to selected transactions.
- D. A collection of transactions linked to previous blocks.

**Question 22**

Why are the blocks linked together?

- A. To provide tampering resistance.
- B. To provide visibility into transaction history.
- C. To create a chain.
- D. To provision transactions.

**Question 23**

When is a transaction included in a block?

- A. When you send it from your wallet.
- B. When consensus is reached on the network and a miner includes the transaction in a block.
- C. When the receiver acknowledges the transaction.
- D. When the hash pointer is calculated.

**Question 24**

How does a transaction identify the address from which the value is sent and the address to which the value is sent?

- A. By using smart routing.
- B. The miners must know the identity of the sender and the receiver.
- C. By using the public keys of the network.
- D. Transactions are signed by the private key of the sender.

**Question 25**

What is Proof of Work?

- A. A conceptually simple but computationally complex puzzle.
- B. Proof that a miner has found a block.
- C. A system where miners can declare their work to receive compensation.
- D. The creation of hash pointers by wallets.

**Question 26**

You want to start your own cryptocurrency network. What is the key to making it successful?

- A. A unique selling point.
- B. Strong privacy protection.
- C. High price fluctuation.
- D. Broad adoption of the coin.



**Question 27**

What functionality does a Bitcoin wallet NOT provide?

- A. Provision of Bitcoin addresses.
- B. Storage of transactions.
- C. Storage of private keys.
- D. Tracking Bitcoins

**Question 28**

You work for the government. You hire an institute to conduct scientific research on new money laundering techniques. You have to provide coins for the research. Which wallet type should you prefer?

- A. Web wallet.
- B. Paper wallet.
- C. Multi-sig wallet.
- D. Mobile wallet.

**Question 29**

Besides spent Bitcoins, what is a typical output of a Bitcoin transaction?

- A. Transaction fee
- B. Unspent Bitcoins
- C. Target address
- D. Satoshis

**Question 30**

Which stage of money laundering remains hard, even when using cryptocurrencies?

- A. Integration; converting Bitcoins into fiat money.
- B. Placement; getting dirty money to a launderer/service.
- C. Layering; hiding the origin of the money.
- D. None; using cryptocurrencies, all stages of money laundering become easy.

**Question 31**

What is needed for a mixing service besides a Bitcoin reserve?

- A. Altcoins.
- B. An exchange.
- C. Dollars / fiat money.
- D. Time between transactions.

**Question 32**

How can you assess the effectiveness of a mixing service?

- A. By inspecting the blocks that contain the transactions.
- B. By checking baseline performance.
- C. By performing a test using a small amount of Bitcoins.
- D. By performing a taint analysis.

**Question 33**

You use a new receiving address. You perform a taint analysis, and you see a taint of 6,486%. What is your next move?

- A. Find a way to convert the Bitcoins into fiat money.
- B. Use another mixing service. This one did not work.
- C. Find a tumbling service to blend the transactions.
- D. Generate a new receiving address.

**Question 34**

What is the primary goal of a mixing service?

- A. To tumble Bitcoins.
- B. To protect privacy.
- C. To provide clean Bitcoin addresses.
- D. Nothing, they are all scams.

**Question 35**

You encounter address "175tWpb8K1S7NmH4Zx6rewF9WQrcZv245W". Is this a valid Bitcoin address?

- A. No, this does not look like Bitcoin.
- B. Yes, this is a valid Bitcoin address.
- C. No, this looks like an ETH address.
- D. No, this is a private key.

**Question 36**

How many characters do Bitcoin addresses generally contain?

- A. 34
- B. 33
- C. 32
- D. 12

**Question 37**

What will probably happen when Bitcoin reaches its maximum supply?

- A. The price of all Bitcoins will skyrocket.
- B. A new currency will be created.
- C. Transaction fees will increase.
- D. Nothing will change.

**Question 38**

On average, how often is a new block mined?

- A. Every minute.
- B. Every 5 minutes.
- C. Every 8 minutes.
- D. Every 10 minutes.

**Question 39**

Which is NOT a way of converting Bitcoin into fiat money?

- A. Buying commodities.
- B. Using an exchange.
- C. Using a Bitcoin credit card.
- D. Using a Bitcoin ATM.

**Question 40**

You often work with cryptocurrencies. You usually sit in your favourite coffee shop and work on your laptop, where your software wallets are stored. You use full-disk encryption, and you always make a backup of your wallets. What represents the biggest risk to you in this situation?

- A. Shoulder surfing.
- B. Trojan horse.
- C. Using public Wi-Fi.
- D. Losing your laptop.

## Answers



Question	Answer
1	A The Clear Web is the region of the internet that is accessible by all users, including criminals. The Clear Web is not intentionally hidden, but it does not completely lack cryptographic technology.
2	C ARPA took over the project before it became open-source.
3	A As the sole user/admin of the site, Richard should worry about vulnerabilities that may result in exposing his data and/or identity. On a shared Dark Market, this would be a shared risk.
4	B Silk Road, AlphaBay and Hansa were (are) Dark Markets. The rest were (are) not.
5	B “Router” refers to routing within the Tor network.
6	A The exit node sends the request to the target server. Any illegal contact or suspicious activity becomes most visible at that node.
7	D Multi-factor authentication is always the most secure option. This is why SesameCave would be the right choice.
8	B B2C sales make up approximately 70% of all Dark Market sales.
9	A Configuring Tor to change its routing path every 5 minutes would enable Alice to have more privacy.
10	C By using a VPN service, you can prevent your provider from identifying you as a Tor network-user.
11	A PGP provides a “Web of Trust”.
12	B One of the most important properties of a hash function is that it is irreversible. Finding out the original value should be impossible, or at least extremely hard.
13	C The downsides are: less anonymity, no escrow and marketing disadvantages.
14	D Everybody makes mistakes, even criminals. Human errors often provide law enforcement with an opportunity to start investigations.

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- 15 B Wikipedia and Google are not favourable options. If you want to protect your privacy, Pastebins and Reddit work best.
- 16 A Good website structure provides for easy accessibility by customers. Easy scraping is a side effect of having a good structure.
- 17 D Freedom of speech is a fundamental value in Western Europe and the U.S. In those countries, more nodes can be found.
- 18 B As a result of Operation Onymous, many hidden services were taken down and several vendors and administrators were arrested.
- 19 A .onion addresses point to hidden services.
- 20 C The transactions are completely transparent. With some effort, they can be traced back to you if your keys are known to be yours.
- 21 D A block contains transactions and a pointer to the previous blocks.
- 22 A The purpose of linking the blocks is to create tampering resistance.
- 23 B For a transaction to be included in a block, consensus must be reached and a miner has to include the transaction in a block.
- 24 D Transactions are signed by the private key of the sender.
- 25 A Proof of Work is the puzzle miners solve. By solving the puzzle, miners create new blocks.
- 26 D A cryptocurrency can only work if the coin is broadly adopted.
- 27 B A transaction must be stored in a block, not in a wallet.
- 28 C The project involves multiple parties. A multi-sig wallet ensures that none of the parties can steal the money.
- 29 B If the amount is not perfectly spent, the transaction output is unspent Bitcoins.
- 30 A The “integration” stage remains difficult. It is not easy to convert cryptocurrency into fiat money.
- 31 D There is a need for time between transactions to increase diversion.
- 32 D The effectiveness of a mixing service is assessed by performing a taint analysis.
- 33 A A low taint means that the transactions are quite anonymised. You can try to find a way to convert the Bitcoins into fiat currency.

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- 34 B The primary goal of a mixing service is to provide privacy, so that transactions cannot directly be tracked from one address to another.
- 35 B 175tWpb8K1S7NmH4Zx6rewF9WQrcZv245W is a valid Bitcoin address.
- 36 A Bitcoin addresses generally contain 34 characters, but there are exceptions.
- 37 C When Bitcoin reaches its maximum supply, transaction fees are likely to increase dramatically.
- 38 D On average, a new block is mined every 10 minutes.
- 39 A Buying commodities will not provide you with fiat money.
- 40 C Using public Wi-Fi is the greatest risk to the security of your crypto coins in this scenario.

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