

IV International Olympiad on Financial Security

Preliminary round 2024

«LAW»

QUESTION 1.

Select all correct statements.

- 1) Combining the efforts of surveillance authorities in the field of AML/CFT/PF and financial intelligence units can provide a significant synergistic effect, allowing for more targeted supervision taking into account the identified risks of ML, FT and PF.
- 2) The main direction of activity of government bodies to increase the effectiveness of anti-corruption is to strengthen international cooperation and develop effective forms of cooperation with law enforcement agencies and special services, with financial intelligence units and other competent authorities of foreign states and international organizations in the field of anti-corruption and search, confiscation and repatriation of property obtained through corruption and located abroad.
- 3) The scope of activity of the financial intelligence unit is constantly narrowing due to the expansion of the system of government bodies and the specialization of their functions.
- 4) A conflict of interest is considered to be a situation in which the personal interest of an official can influence the decision-making process and thus cause damage to the interests of the state, society or citizens.
- 5) Financial intelligence is an operational search activity, since Federal Service for Financial Monitoring (Rosfinmonitoring) is authorized to perform the functions of body of inquiry.

Correct answer: 124

QUESTION 2.

Select all correct statements.

- 0) Many banks and other financial institutions are afraid to attract vulnerable segments of the population as clients, realizing that during inspections they may face claims regarding the sufficiency of taking into account risks in relation to this group of clients, which contributes to a reduction in the number of alternative money transfer systems and, accordingly, a decrease in growth circulation of “dirty” cash.
- 1) Each country develops and approves a national AML/CFT/PF risk assessment, which helps many financial institutions offer legitimate financial products at FATF-acceptable requirements to problem clients.
- 2) Credit institutions are always an element of one or another typology of illegal cash withdrawal, and in this regard, it is important to know the methodology for determining the risk of credit institutions being involved in illegal cash withdrawal.
- 3) Criminal attacks in the financial and credit sphere are distinguished by their diversity and special sophistication, highly intellectual nature, the ability of criminals to quickly adapt to new forms and methods of banking activities, which requires high professionalism from the law enforcement officer, since their solution depends on knowledge of not only criminal law, but also others branches of law (tax, civil, financial, etc.).

- 4) The implementation of AML/CFT measures is a fairly powerful tool for political and (or) economic pressure on one or more states and territories, which leads to the ineffective functioning of the international system for combating money laundering and the financing of terrorism.

Correct answer: 234

QUESTION 3.

A company that has been the victim of ransomware attackers has filed a police report after paying a ransom in Bitcoin and successfully unlocking its data that was infected by a ransomware attack. The payment was made through a virtual asset service provider (VASP), which was named by the criminals in the ransom demand.

During the police investigation into this VASP, it was determined that it was officially registered in State A. The individual was subsequently identified and it was discovered that he had previously facilitated Bitcoin transfers associated with the payment of ransom as a result of ransomware attacks. The police searched the person's apartment and seized payment cards, mobile phones and other devices, including hard drives, USB drivers and tablets. Analysis of mobile phone messages and infiltration of online forums identified a group of other actors that performed similar functions in facilitating Bitcoin ransom payments as a result of ransomware attacks. During the financial investigation, it turned out that fiat money sent by victims of the attacks was transferred by members of the specified group to foreign bank accounts owned by foreign VASPs, including those located in high-risk jurisdictions.

Based on the results of financial investigations and forensic examinations of phones and other devices, the competent authorities concluded that this group sent malware to victims and demanded that the victims pay a ransom equal to several hundred euros in each attack. Members of this group were charged with extortion and subsequent laundering of illegal proceeds, which amounted to a total of approximately 300,000 euros, paid by various victims.

What traditional investigative method(s) were used in this financial investigation into virtual assets?

- A. Interception of communications.
- B. Resolution on provision of information.
- C. Surveillance, interception of communications, undercover operation, resolution on provision of information.
- D. Surveillance, interception of communications, resolution on provision of information.
- E. Surveillance, interception of communications, undercover operation, resolution on provision of information, analysis of the public bitcoin registry.
- F. Surveillance, interception of communications, resolution on provision of information, seizure.

Correct answer: C

QUESTION 4.

The bank and the client entered into a bank account agreement. Determine what types of legal relations arise between them.

- 1) Private legal relations between the bank and the client based on provisions of civil law.
- 2) Public legal relations between a financial intelligence agency and a credit institution based on the provisions of administrative law.
- 3) Public legal relations between the National Bank and a credit institution based on provisions of civil law.
- 4) Public legal relations between the national Bank and a credit organization based on the rules of banking law.
- 5) Public legal relations between the financial intelligence agency and the credit institution, based on the rules of banking law.

Correct answer: 124

QUESTION 5.

Objects of financial monitoring include:

- 1) economic system of the state as a whole.
- 2) crimes that the financial intelligence agency and law enforcement agencies are aimed at combating.
- 3) commercial activities of financial entities
- 4) illegal financial transactions that are subject to control by the financial intelligence agency
- 5) compliance and fulfillment by subjects of AML/PF legislation of the statutory obligation to report to the financial intelligence agency information about dubious transactions and operations, as well as those who commit them

Correct answer: 245

QUESTION 6.

In the list below, select sources of external threats to the financial security of the state:

- 1) inefficiency of global financial institutions, lack of ability to regulate negative global financial processes;
- 2) competition between countries for an advantageous place in the global economic system through the use of financial instruments of pressure;
- 3) persons with a criminal record for crimes involving financial relations, corruption crimes, as well as organizations created by these persons;
- 4) changes in the rules for conducting foreign economic activity, rules of currency circulation;
- 5) lack of integrity in the legal regulation of the financial and legal spheres of the state.

Correct answer: 12

QUESTION 7.

Tax risks of the state are usually considered to include:

- 1) the risk of a decrease (failure to fulfill the plan) of tax revenues to the country's budget system, including due to the use by taxpayers of "legal" schemes for minimizing tax payments
- 2) risk of tax control
- 3) risk of reduction or loss of liquidity
- 4) the risk of a systemic narrowing of the tax base due to a reduction in the volume of domestic and foreign business and investment
- 5) the risk of reducing the competitiveness of the national tax system

Correct answer: 145

Preliminary round 2024

«ECONOMICS»

QUESTION 1.

Indicators of economic security are the most important values that give an idea of the state of the economic system as a whole, its stability and mobility.

Which of the following indicators are indicators of security in the economy?

- A. GDP growth rate.
- B. Inflation rate.
- C. Export dependence.
- D. The state of the technical base of the economy.
- E. Research and development (R&D) expenses.
- F. Closed economy.

- 1) (A) and (B)
- 2) (A), (B), (D) and (E)
- 3) (A), (B) and (F)
- 4) (C) and (F)
- 5) (B)

Correct answer: (A), (B), (D) and (E)

QUESTION 2.

Establish a correspondence between the concept and its definition. Write your answer as a sequence of numbers.	
DEFINITION	CONCEPT
A. Any individual or legal entity that carries out on a commercial basis one or more specified activities or transactions for or on behalf of a client.	1) Money mule 2) Service provider in the field of virtual assets
B. Any individual or legal entity which exchanges on a commercial basis one or more forms of virtual assets for other virtual assets, carries out responsible storage and/or management of virtual assets or tools that allow control of virtual assets, etc., for or on behalf of another person or entity.	3) Financial institution 4) Exchange service provider (exchange provider) 5) Miner
C. A third party that maintains accounts to transfer proceeds into fiat currency and is used at the final stage in the money laundering process. During the laundering process, this person is responsible for a certain part of the total amount of funds.	6) Wallet provider
D. An individual or legal entity that participates in the operation of a decentralized virtual currency network through the use of special software to solve complex algorithms in a distributed proof-of-work system or other distributed proof system used to verify and confirmation of the correctness of transactions in the virtual currency system.	
E. An individual or legal entity engaged in commercial activities for a commission in exchanging virtual currency for real currency, non-cash funds or other virtual currency, as well as for precious metals, and vice versa.	
F. A person who provides a facility (software application or other mechanism/media) for the depositing, storage and transfer of Bitcoins or other virtual currency).	

Correct answer: 321546

QUESTION 3.

Fill in the blanks in the text using suitable words and phrases suggested below.

Financial security is (A) from various threats at all levels of (B) of the country. The financial system should be considered as a general (C) of financial security. Finances constitute an integral system that includes several interconnected links (institutions) and bodies. The presence of various institutions within the financial system is explained by the fact that finances serve diverse (D) of society and cover with their influence the entire economy of the country and the entire sphere of social activity. All (E) in society are structured into a financial system, which is a set of various spheres and links of financial relations, in the process of which cash funds are formed and used. In turn, funds, being in constant movement, create cash flows that require a clear organization of (F). Cash flows connect the parts of the financial system into a single whole. It is important to point out that financial relations arising on the basis of the country's monetary economy have a (G) content and represent the process of movement of financial resources in monetary form.

Write your answer as a sequence of numbers.

- 1) financial system
- 2) cash settlements
- 3) needs
- 4) financial relations
- 5) state of protection
- 6) uncertain
- 7) material
- 8) object
- 9) social groups
- 10) financial discipline

Correct answer: 5183427

(Financial security is a **state of protection** from various threats at all levels of **financial system** of the country. The financial system should be considered as a general **object** of financial security. Finances constitute an integral system that includes several interconnected links (institutions) and bodies. The presence of various institutions within the financial system is explained by the fact that finances serve diverse **needs** of society and cover with their influence the entire economy of the country and the entire sphere of social activity. All **financial relations** in society are structured into a financial system, which is a set of various spheres and links of financial relations, in the process of which cash funds are formed and used. In turn, funds, being in constant movement, create cash flows that require a clear organization of **cash settlements**. Cash flows connect the parts of the financial system into a single whole. It is important to point out that financial relations arising on the basis of the country's monetary economy have a **material** content and represent the process of movement of financial resources in monetary form).

QUESTION 4.

Once beneficial owners have been identified, the relevant information must be verified. Verification is a combination of verification measures and other processes that a country must apply at various stages to ensure the accuracy of beneficial ownership information. What beneficial owner information is subject to verification?

- A. Identification documents issued by the state.
- B. A set of “properties” belonging to a person: name, date of birth and citizenship.
- C. Documents confirming the absence of citizenship of another state.
- D. Whether the person determined to be the beneficial owner has right to vote.
- E. Whether the person who is determined to be the beneficial owner actually exercises rights related to the extent of ownership and/or control in his or her own name, or he exercises such rights at the direction of an unknown third party or on the basis of an agreement concluded with a third party.
- F. Whether the identified beneficial owner fits the structure and risk profile of the legal entity.
 - 1) (A), (B), (E) and (F)
 - 2) (A), (B) and (E)
 - 3) (A) and (B)
 - 4) (C), (D) and (E)
 - 5) (A), (B), (C) and (E)

Correct answer: (A), (B), (E) and (F)

QUESTION 5.

The number and scale of attacks using _____ have increased significantly in recent years. Such attacks are carried out primarily to obtain _____. The increase in the number of such attacks has led to an increase of _____ from their implementation, as well as an increase in the volume of associated money laundering. Industry officials estimate that funding for such attacks has quadrupled in 2020 and 2021 compared to 2019. Although recent industry data suggests that payments for _____ have trended downward in 2022 (possibly due to victims of attacks refusing to pay), the value of _____ received as ransom by criminals who carried out attacks remains significantly higher than in the period until 2019. However, the actual number of losses committed and incurred in connection with this is likely to be much higher, since victims do not always report such attacks. Attacks cause significant damage and lead to disruption of activities of governments, government agencies and _____. In some cases, such attacks have a serious impact on the healthcare industry and pose a threat to _____, forcing interruption and shutdown of _____ and services. Such attacks also lead to _____ and safety of sensitive data. The criminals who carry out these attacks have developed techniques and methods to increase the profitability of their attacks and the likelihood of their successful implementation.

Fill in the blanks in the above text. Write your answer as a sequence of numbers.

- 1) Virtual assets
- 2) Ransomware
- 3) Criminal proceeds
- 4) Illegal profit
- 5) Privacy violation
- 6) Commercial enterprises
- 7) Critical infrastructure facilities
- 8) National security
- 9) Restoration of access.

Correct answer: 243916875

QUESTION 6.

Select all correct statements. Write your answer as a sequence of numbers.

- 1) Real estate experts should ensure that systems are developed and implemented to reduce ML/FT risks.
- 2) Real estate experts, when documenting ML/FT risks as part of a thorough risk assessment, cannot independently assign a risk level rating
- 3) Real estate experts may not be able to meet AML/CFT obligations if they only use checklists to perform risk assessments.
- 4) Real estate experts cannot reassess ML/FT risks.
- 5) Real estate experts must assess the risk of each specific client and service; such assessments should be made taking into account the activities of the entire company as part of a larger risk assessment process.
- 6) Real estate experts and the agencies they work for, may not have internal control measures that relate to the size and nature of their business activities.

Correct answer: 135

QUESTION 7.

Countries should ensure that originating institutions (whether VASPs or other reporting entities such as financial institutions) involved in virtual asset transfers obtain and maintain required and accurate originator information and required recipient information, and forward this information to receiving institutions (VASPs or other reporting entities such as financial institutions), if any.

In addition, countries should ensure that receiving institutions (whether VASPs or other reporting entities such as financial institutions) obtain and maintain required (but not necessarily accurate) sender information, as well as required and accurate recipient information, as set out in the Explanatory Note to Recommendation 16.

Which of the following may contain information that the above agencies must receive and maintain?

- A. Sender Name – the exact (verified) full name of the person sending the transfer.
 - B. Recipient Name – The name of the person designated by the sender as the recipient of the virtual asset transfer.
 - C. The name of the financial institution through which the sender is making the electronic transfer.
 - D. The address of the financial institution through which the sender is making the electronic transfer.
 - E. Recipient's address or government identification number.
 - F. Recipient's account number, if such an account is used in the transaction.
- 1) (A) and (B)
 - 2) (A), (B) and (F)
 - 3) (A), (C), (D) and (F)
 - 4) (F)
 - 5) (A) and (E)
 - 6) (C), (D) and (E)

OTBET: (A), (B) and (F)

Preliminary round 2024
«INFORMATION SECURITY»

QUESTION 1.

Which of the following refers to cryptographic methods of protecting information?

- a) compression;
- b) encryption;
- c) coding;
- d) steganography;
- e) all answers are correct;
- f) there is no correct answer;

Correct answer: d

QUESTION 2.

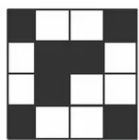
What is the private key of an electronic digital signature?

- a) an electronic digital signature key, which is encrypted using the owner's only symmetric key;
- b) the electronic digital signature key, which is stored separately from other private keys;
- c) a unique sequence of characters known to the owner of the signature key certificate and intended for creating an electronic digital signature in electronic documents using electronic digital signature tools;
- d) an electronic digital signature key, which is used to encrypt the headers of electronic documents to establish the authenticity of the owner;

Correct answer: c

QUESTION 3.

To encrypt the biometric data of employees of a certain company, their internal encryption algorithm is used, which, after the process of scanning and isolating characteristic points of the image (for example, a fingerprint pattern), converts them into digital format and performs encryption.



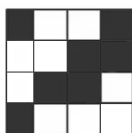
1 0 0 1
0 1 1 0
0 1 0 0
1 0 0 1

Suppose a picture (of size $N \times N$) with a fingerprint has only two colors: black (this is 1) and white (this is 0), then each point will contain color information (1 or 0), the coordinates of this point IJ relative to the entire image, and an additional bit indicating whether this point is a control point (1 - it is, 0 - it is not).

The company's algorithm is as follows. An XOR (exclusive OR) operation is performed between each element of matrix A , containing information about the color of each pixel, and each element of matrix B , containing information about whether a given point is a control point (i.e., the element of the new encrypted matrix C will be equal to $c_{ij} = a_{ij} \text{ xor } b_{ij}$). XOR receives signals (0 or 1), performs a logical operation on them and produces one signal: if all signals are the same, then the output is 0, if all are different - 1. And the control points are located in those places in the matrix where the condition is met: the sum of the coordinates of this point modulo 3 is equal to 1 (i.e. $(i + j) \bmod 3 = 1, i = 0..N - 1, j = 0..N - 1$, where N is the size of the matrix).

If attackers manage to find all the control points, then from the encrypted image they will be able to restore the original fingerprint.

Recover the original image if the encrypted one looks like this:



If each row and each column of the result matrix can be interpreted as numbers in the binary number system (the columns should be interpreted in transposed form), then by converting each such number to the decimal number system, it is necessary to write the answer as the sum of all these numbers in the decimal number system.

Correct answer: 75

QUESTION 4.

Digital currency transactions mostly involve fairly small numbers. For this reason, one of the digital exchanges uses an 8-bit representation of real numbers, similar to the IEEE 754 standard for representing 32-bit real numbers, to optimize the storage of transaction data.

Moreover, 1 bit out of eight corresponds to the sign of the number, 3 bits correspond to the exponent, and 4 bits to the mantissa (each bit of the mantissa corresponds to one of the negative powers of 2: -1, -2, -3, -4, and the leading one (unity) is simply discarded). The exponent is shifted not by 127, as in the standard (127 is not plused), but by 3. And just like in the standard, if the exponent consists only of units, then this is not a number, but the value of infinities or NaN. What is the maximum absolute number that can be used in transactions on this exchange?

Correct answer: 15.5

QUESTION 5.

What is used to create an electronic digital signature:

- a) The recipient's private key;
- b) The sender's public key;
- c) The sender's private key;
- d) The recipient's public key.

Correct answer: c

QUESTION 6.

What is the description of the difference between DES and RSA algorithms:

- a) DES is a symmetric algorithm, and RSA is asymmetric;
- b) DES is an asymmetric algorithm, and RSA is a symmetric one;
- c) Both are hashing algorithms, but RSA generates 160-bit hash values;
- d) DES generates public and private keys, and RSA performs message encryption.

Correct answer: a

QUESTION 7.

For a certain subnet, the mask 255.255.224.0 is used. How many different computer addresses does this mask allow? If in practice two of the possible addresses are not used to address network nodes: a network address in which all bits cut off by the mask are 0, and a broadcast address in which all these bits are 1.

Correct answer: 8192 addresses

Preliminary round 2024

«INTERNATIONAL RELATIONS»

QUESTION 1.

The illegal movement of migrants is by definition a transnational crime; Often, those involved in it need to transfer money to the country of origin of the migration route or to another country.

The most common way to transfer funds (often in cash) from migrant smuggling from one jurisdiction to another is through the _____ system, which makes financial analysis and investigations extremely difficult for FIUs and law enforcement agencies.

This system is used in small markets, stores selling mobile phones and/or electronic devices, and travel agencies owned by members of organized crime groups. It is also used in restaurants run by individuals themselves who are involved in the illegal movement of migrants or other members of criminal organizations, who, as a rule, are citizens of the same countries as the migrants.

Based on the above passage, what system of transferring funds received from the illegal movement of migrants is used by criminals?

Correct answer: Hawala

QUESTION 2.

Select all correct statements. Write your answer as a sequence of numbers.

- 1) Interaction between the various national authorities involved in the regulation and licensing or registration of VASPs is carried out on the basis of cooperation agreements signed between them.
- 2) In accordance with paragraph 3 of the Explanatory Note to Recommendation 15, virtual asset service providers should be subject to licensing or registration only in the jurisdiction(s) in which they are established.
- 3) If the virtual asset service provider is an individual, he must be licensed or registered in the jurisdiction in which its place of business is located.
- 4) If an individual carries out his business activities at his permanent residence address or if the place of business cannot be determined, then the main place of residence of such a person may, for example, be considered as the place of business.
- 5) Countries should have appropriate channels for the exchange of information to facilitate the identification and prosecution of unlicensed or unregistered virtual asset service providers.

Correct answer: 345

QUESTION 3.

No single competent authority can combat the ML/FT risks associated with the smuggling of migrants acting alone. Migrant smuggling often spans multiple jurisdictions, with traces of migrant smugglers leaving behind. Thus, the investigation of cases related to the illegal movement of migrants requires effective and productive international cooperation. By its nature, the illegal movement of migrants is a transnational (trans-border) crime. Therefore, effective international cooperation is of utmost importance during investigations, in particular during intelligence gathering and analysis, prosecution and asset recovery.

What measures can states take to ensure effective international cooperation in combating the illegal movement of migrants?

- A. Establish joint investigative groups.
 - B. Compile and translate documents in a single language.
 - C. Improve the legislation of countries by bringing them to uniformity.
 - D. Conduct parallel financial investigations.
 - E. Provide specific training for law enforcement officials (for example, specific training provided by the European Judicial Training Network).
 - F. Conclude international treaties with other countries.
- 1) (A) and (D)
 - 2) (A), (B) and (E)
 - 3) (A) and (F)
 - 4) (A), (D) and (E)
 - 5) (B) and (C)
 - 6) (A), (D), E) and (F)

Correct answer: (A), (D) and (E)

QUESTION 4.

Select all correct statements. Write your answer as a sequence of numbers.

- 1) Countries should provide mutual legal assistance promptly, constructively and effectively to the maximum extent possible in connection with investigations, prosecutions and related proceedings in relation to money laundering, predicate offenses and terrorist financing.
- 2) Countries should impose restrictive conditions on the provision of mutual legal assistance.
- 3) Countries should refuse to comply with a request for mutual legal assistance if the crime involves tax matters.
- 4) Countries should ensure that they have clear and effective procedures for promptly prioritizing and executing requests for mutual legal assistance.
- 5) Countries should ensure the confidentiality of requests for mutual legal assistance they receive and the information they contain.
- 6) Countries should provide each other with mutual legal assistance only in cases of dual jurisdiction, provided that such assistance does not require coercive measures.

Correct answer: 145

QUESTION 5.

A virtual asset service provider (VASP), according to the FATF Recommendations, is defined as any individual or legal entity which is not covered by the requirements elsewhere in the FATF Recommendations and which carries out on a commercial basis certain activities or transactions for or on behalf of another individual or legal entity.

What activities or operations are carried out by the VASP?

- A. Exchange of virtual assets for fiat currency and vice versa.
- B. Exchange of one or more forms of virtual assets for other virtual assets.
- C. Exchange of virtual assets through offline wallets.
- D. Exchange of virtual assets through custodial wallets.

- E. Responsible storage and/or management of digital currency allowing control of virtual assets.
 - F. Participation in the provision and provision of financial services related to the offer and/or sale of the issuer's virtual assets.
- 1) (B), (D) and (E)
 - 2) (A), (B) and (F)
 - 3) (A) and (B)
 - 4) (A), (C) and (F)
 - 5) (A) and (C)
 - 6) (A), (D) and (E)

Correct answer: (A), (B) and (F)

QUESTION 6.

Money and value transfer services are _____, involving the acceptance of cash, checks, other monetary instruments, or other stores of value, as well as the payment of the corresponding amounts in cash or in other form by _____ through _____, message, transfer or through _____ to which the money and value transfer _____ belongs. _____ made through such services may involve one or more intermediaries and final payment to _____, as well as new _____. Sometimes these services are associated with specific _____ and are described by a number of technical terms, including hawala, hundi and fei chen.

Fill in the blanks in the above text. Write your answer as a sequence of numbers.

1. communications
2. payment methods
3. transactions
4. recipient
5. financial services
6. third party
7. geographical regions
8. clearing network
9. service provider

Correct answer: 541893627

QUESTION 7.

Select all correct statements.

- 6) Combining the efforts of surveillance authorities in the field of AML/CFT/PF and financial intelligence units can provide a significant synergistic effect, allowing for more targeted supervision taking into account the identified risks of ML, FT and PF.
- 7) The main direction of activity of government bodies to increase the effectiveness of anti-corruption is to strengthen international cooperation and develop effective forms of cooperation with law enforcement agencies and special services, with financial intelligence units and other competent authorities of foreign states and international organizations in the field of anti-corruption and search, confiscation and repatriation of property obtained through corruption and located abroad.
- 8) The scope of activity of the financial intelligence unit is constantly narrowing due to the expansion of the system of government bodies and the specialization of their functions.

- 9) A conflict of interest is considered to be a situation in which the personal interest of an official can influence the decision-making process and thus cause damage to the interests of the state, society or citizens.
- 10) Financial intelligence is an operational search activity, since Federal Service for Financial Monitoring (Rosfinmonitoring) is authorized to perform the functions of body of inquiry.

Correct answer: 124