Begonnen am	Freitag, 27. Januar 2023, 10:04
Status	Beendet
Beendet am	Freitag, 27. Januar 2023, 10:24
Verbrauchte Zeit	19 Minuten 40 Sekunden
Bewertung	**16,50** von 20,00 (**82,5**%)

Frage **1**

Vollständig

Erreichte Punkte 1,00 von 1,00

Imagine you want to execute Java code in a new Thread. One possibility is to write a class `MyExecutable` that implements the interface `java.lang.Executable` and to create a new Thread that executes the code in `MyExecutable`.

Bitte wählen Sie eine Antwort:

- ○ Wahr
- ◉ Falsch

Frage **2**

Vollständig

Erreichte Punkte 1,00 von 1,00

What distinguishes a MAC (Message Authentication Code) from an ordinary Hash function?

Wählen Sie eine oder mehrere Antworten:

- ☐ a. By using a MAC a message gets encrypted before being hashed.
- ☑ b. By using a MAC a message and a secret key get hashed to ensure message integrity.
- ☐ c. When applying an ordinary hash function to a message, that message can not be reconstructed from the corresponding hash, while this is possible when applying a MAC to a message.
- ☐ d. Hashes generated by a MAC function are much smaller in size than hashes generated by ordinary hash functions and are therefore better suited for network transfer.

Frage **3**

Vollständig

Erreichte Punkte 1,00 von 1,00

Asymmetric cryptography: The only way to encrypt a message is to use the public key, while the private key can only be used for decryption.

Bitte wählen Sie eine Antwort:

- ○ Wahr
- ◉ Falsch

Frage **4**

Vollständig

Erreichte Punkte 1,00 von 1,00

Asymmetric cryptography: To make sure only the intended receiver can decrypt a message, it has to be encrypted with the receiver's public key.

Bitte wählen Sie eine Antwort:

- ◉ Wahr
- ○ Falsch

Frage **5**

Vollständig

Erreichte Punkte 0,50 von 1,00

Message integrity means that the data of a message ...

Wählen Sie eine oder mehrere Antworten:

- ☐ a. ... is not corrupted in transit.
- ☐ b. ... is encrypted.
- ☐ c. ... is not read by a third party.
- ☑ d. ... is not tampered with by a third party.

Erreichte Punkte 1,00 von 1,00

What happens when the `close()` method of a `ServerSocket` is called?

Wählen Sie eine oder mehrere Antworten:

- [ ] a. All socket connections that were accepted by the `ServerSocket` are closed.
- [x] b. The `ServerSocket` stops listening to new connection requests.
- [ ] c. The connected clients receive an exception that the `ServerSocket` was closed.

Frage **7**

Vollständig

Erreichte Punkte 1,00 von 1,00

What are valid ways to implement mail forwarding in the TransferServer according to the DSLab assignment? Suppose

Wählen Sie eine oder mehrere Antworten:

- [x] a. Make DMTP connection handlers write mails into a `java.util.concurrent.BlockingQueue`, and use a worker thread to continuously reads and forward mails from that queue.
- [x] b. Use an Executor returned by `Executors.newFixedThreadPool`, and let DMTP connection handlers submit new 'MailForwarder' threads using the executor.
- [ ] c. Use an Executor returned by `Executors.newCachedThreadPool`, and let DMTP connection handlers submit new 'MailForwarder' threads using the executor.
- [ ] d. Let DMTP connection handlers spawn a new 'MailForwarder' thread after each message is received.

Frage **8**

Vollständig

Erreichte Punkte 1,00 von 1,00

Mark the correct answers concerning TCP and UDP Sockets in Java:

Bitte wählen Sie eine Antwort:

- (•) Wahr
- ( ) Falsch

Erreichte Punkte 1,00 von 1,00

Which of these code snippets are valid ways of implementing a thread-safe, consistent, and atomic in-memory ID generator?

Wählen Sie eine oder mehrere Antworten:

a. A:

```
class IdGenerator {
  int id = 0;

  int next() {
    id = id + 1;
    return id;
  }
}
```

b. B:

```
class IdGenerator {
  int id = 0;

  int next() {
    return ++id;
  }
}
```

c. C:

```
class IdGenerator {
  AtomicInteger id = new AtomicInteger();

  int next() {
    return id.incrementAndGet();
  }
}
```

d. D:

```
class IdGenerator {
  int id = 0;

  int synchronized next() {
    return ++id;
  }
}
```

Erreichte Punkte 1,00 von 1,00

Assume a remote interface `MyRemoteA` and another remote interface `MyRemoteB` that declares a method with the signature `void foo(MyRemoteA a) throws RemoteException;`. Is the method signature of `foo` a valid signature for an RMI remote method?

Bitte wählen Sie eine Antwort:

- (●) Wahr
- ( ) Falsch

Frage **11**

Vollständig

Erreichte Punkte 0,50 von 1,00

Which statements about the *startsecure* handshake protocol implemented in Lab 2 are correct?

Wählen Sie eine oder mehrere Antworten:

- [ ] a. Its purpose is to be guard against replay attacks (a once valid transmission is fraudulently repeated or delayed).
- [ ] b. During the handshake, the sender uses the receiver's private key for encryption.
- [x] c. The initial handshake (encrypted via RSA) is used to safely exchange the AES key.

Frage **12**

Vollständig

Erreichte Punkte 1,00 von 1,00

Which types of objects can be passed as parameters to a method defined by an RMI remote object (suppose both client and server have access to the same code).

Wählen Sie eine oder mehrere Antworten:

- [x] a. Any primitive data type.
- [ ] b. Any object that does not use other complex types (like collections).
- [x] c. Any fully serializable object.
- [ ] d. Any object that only has primitive members.
- [x] e. References to other remote objects.

Frage **13**

Vollständig

Erreichte Punkte 1,00 von 1,00

What type of service does TCP provide? Tick all that apply.

Wählen Sie eine oder mehrere Antworten:

- [x] a. reliable
- [ ] b. unreliable
- [x] c. connection-oriented
- [ ] d. connection-less

Frage **14**

Vollständig

Erreichte Punkte 1,00 von 1,00

In symmetric cryptography, which key is used to decrypt a message?

Wählen Sie eine oder mehrere Antworten:

- [ ] a. The sender's private key.
- [ ] b. The receiver's private key.
- [ ] c. The sender's public key.
- [ ] d. The receiver's public key.
- [x] e. The shared secret key.

Erreichte Punkte 0,00 von 1,00

In RMI for bootstrapping purposes you have to register with the RMI registry ...

Bitte wählen Sie eine Antwort:

- (●) Wahr
- ( ) Falsch

Frage **16**

Vollständig

Erreichte Punkte 0,50 von 1,00

What are the benefits of using Base64 encoding?

Wählen Sie eine oder mehrere Antworten:

- [ ] a. The security is enhanced as the data is additionally encrypted with Base64.
- [x] b. It is possible to transmit any kind of data as a text string.
- [x] c. The data throughput is increased because of the higher bit-rate of Base64.
- [x] d. Control characters are converted to printable ASCII characters.

Frage **17**

Vollständig

Erreichte Punkte 1,00 von 1,00

If two hosts are communicating via UDP, both sides have to use the same port number for the UDP communication.

Bitte wählen Sie eine Antwort:

- ( ) Wahr
- (●) Falsch

Frage **18**

Vollständig

Erreichte Punkte 1,00 von 1,00

Java RMI communication is encrypted.

Bitte wählen Sie eine Antwort:

- ( ) Wahr
- (●) Falsch

Frage **19**

Vollständig

Erreichte Punkte 0,00 von 1,00

Which statement(s) regarding security hold true:

Wählen Sie eine oder mehrere Antworten:

- [ ] a. Data integrity refers to the fact that data must be reliable and accurate over its entire lifecycle.
- [x] b. Data encryption is a common method of ensuring confidentiality.
- [x] c. Data encryption is a common method of ensuring integrity.
- [x] d. Confidentiality concerns with protecting sensitive information from disclosure to unauthorized parties.

Frage **20**

Vollständig

Erreichte Punkte 1,00 von 1,00

Mark the correct answer(s) concerning concurrency and synchronization in Java:

Wählen Sie eine oder mehrere Antworten:

- [ ] a. If a `java.util.HashMap` is accessed only by retrieving it from a getter method, the `HashMap` can be made thread-safe by writing the `synchronized` keyword in front of that getter method.
- [x] b. A `java.util.HashMap` may throw a `ConcurrentModificationException` even with perfectly proper synchronization.
- [ ] c. If a class is defined as synchronized (e.g., `public synchronized class Foo`) then all methods of this class are automatically thread safe.
- [x] d. Adding the `synchronized` modifier to the method signature is effectively equivalent to enclosing the body of the method with a `synchronized(this) {...}` block.

Direkt zu: