ECM2414

(with Answers)

UNIVERSITY OF EXETER

FACULTY OF ENVIRONMENT, SCIENCE AND ECONOMY

COMPUTER SCIENCE

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Software Development

Module Leader: Dr. Yulei Wu

Duration: TWENTY MINUTES

This is a formative class test. The mark of this paper does not count towards your final module mark.

Answer ALL questions.

This test paper contains 16 multiple-choice questions. Each question may have more than one correct answers, and you must select all the correct answers in order to obtain the 2 marks for that question.

Please note this is NOT a mock exam paper.

This is a CLOSED BOOK examination.

Question 1

When should you consider to use the *waterfall* software development methodology?

(A) When the project is large.

(B) When the project is small.

(C) When the product definition is stable.

(D) When the requirements are fixed and are not ambiguous.

(2 marks)

B, C, D

(Total 2 marks)

Question 2

Choose the correct statement(s) about the *scrum* software development methodology.

(A) Scrum is based on long fixed-length sprints.

(B) Scrum doesn't have regular meetings every day.

(C) Scrum doesn't need to have a final review meeting as it's expected that the product is developed and delivered in a good quality.

(D) Scrum has a planning meeting at the beginning of the project.

(2 marks)

D

(Total 2 marks)

Question 3

Choose the correct statement(s) about the *inner class* and *static nested class*.

(A) An inner class can be accessed using the name of the enclosing class.

(B) A static nested class can be accessed using the instance of the enclosing class.

(C) A static nested class can access the instance members of the enclosing class.

(D) An inner class can access the instance members of the enclosing class.

(2 marks)

D

(Total 2 marks)

Question 4

Choose the correct statement(s) about the *thread* in software development.

(A) A thread is treated as a lightweight process.

(B) Threads exist within a process.

(C) Threads share the local memory of an instance of a program.

(D) Threads don't share the local memory of an instance of a program.

(2 marks)

A, B, C

(Total 2 marks)

Question 5

Why does a thread show non-deterministic behaviours?

(A) It's because different users running the threads.

(B) It's because the threads are scheduled by the operating system.

(C) It's because the thread scheduler has different implementations on different operating systems.

(D) A thread usually behaves the same if it always runs on the same operating system.

(2 marks)

B, C

(Total 2 marks)

Question 6

Choose the correct statement(s) about the difference between the `wait()` and `sleep()` methods in Java.

(A) `wait()` doesn't need to occur in a synchronised block.

(B) `sleep()` must occur in a synchronised block.

(C) `wait()` releases the lock when called.

(D) `sleep()` releases the lock when called.

(2 marks)

C

(Total 2 marks)

Question 7

Choose the correct statement(s) about the thread lifecycle.

(A) When the `start()` method is called, the thread enters the *New* state.

(B) When the `start()` method is called, the thread enters the *Running* state.

(C) When the `start()` method is called, the thread enters the *Runnable* state.

(D) When the `sleep()` method is called, the thread enters the *Sleep* state.

(2 marks)

C, D

(Total 2 marks)

Question 8

Given that there are two threads created, namely *thread1* and *thread2*, choose the correct statement(s) about thread behaviours in the code snippet below

```
1 ...
2       thread1.start();
3       thread1.join();
4       thread2.start();
5 ...
```

(A) Thread2 will start only after thread1 finishes.

(B) Thread1 will start only after thread2 finishes.

(C) Thread1 can start during the running of thread2.

(D) Thread2 can start during the running of thread1.

(2 marks)

A

(Total 2 marks)

Question 9

What can *stale data* cause in multi-threading applications?

(A) Unexpected exceptions

(B) Inaccurate computations

(C) Infinite loops

(D) Corrupted data structures

(2 marks)

A, B, C, D

(Total 2 marks)

Question 10

Choose the correct statement(s) about lambda expressions in Java.

(A) It cannot have zero argument.

(B) It can have zero argument.

(C) Argument types cannot be inferred.

(D) Argument types can be inferred.

(2 marks)

B, D

(Total 2 marks)

Question 11

Choose the correct statement(s) about events and listeners in Java.

(A) They can only be used by GUIs.

(B) They are not restricted to GUIs.

(C) Java uses the delegation model to handle events and listeners.

(D) The delegation model comprises two objects: event and listener.

(2 marks)

B, C

(Total 2 marks)

Question 12

What is/are the benefit(s) of test-driven development?

(A) It makes the code easier to test.

(B) It designs the code from the user's point of view.

(C) It designs the code from the developer's point of view.

(D) It allows to write better programs.

(2 marks)

A, B, D

(Total 2 marks)

Question 13

When should you consider to use mock objects in software testing?

(A) When the real object is difficult to set up.

(B) When the real object is slow to run.

(C) When the real object doesn't exist.

(D) When the real object has a user interface.

(2 marks)

A, B, C, D

(Total 2 marks)

Question 14

Choose the correct statement(s) about the importance of unit testing.

(A) It can reduce the overall debugging time.

(B) It shows the expected behaviours of the code on various inputs.

(C) It allows the testing of whether the method of an object works well with other programs of the system.

(D) It allows the testing of whether the method of an object works well with other methods of the same object.

(2 marks)

A, B

(Total 2 marks)

Question 15

What is/are the benefit(s) of a white-box testing method?

(A) It will reduce the bias of designing the tests.

(B) It will introduce the bias of designing the tests.

(C) It will enable a good code coverage.

(D) It knows the internal working of the code.

(2 marks)

C, D

(Total 2 marks)

Question 16

When should you consider to use the V-model of software development?

(A) When the project is large.

(B) When the project is small.

(C) When the requirements are varying.

(D) When the requirements are ambiguous.

(2 marks)

B

(Total 2 marks)