

Programming af mobile applikationer

Ordinary exam, 14 June 2024

Answers

Question 1

- a) i. Lines 5 and 6 are where the errors occur, lines 2 and 3 are the ones that need changing. So accept either 5 and 6 or 2 and 3. [2 marks]
ii. On lines 2 and 3, val needs to be changed to var. [2 marks]
iii. "Sale! 20% discount on AAU t-shirt! [1 mark]

b)

`5 + 2 = 3` [2 marks]

c)

`2 is less than 5
3 is greater than -1
0 is equal to 0` [3 marks]

Question 2

a) i.

`4 is between 1 and 5
7 is between 6 and 10
I don't know this number!` [3 marks]

ii.

`4 is between 1 and 5
7 is an odd number between 1 and 10
I don't know this number!` [3 marks]

b)

`Parking costs DKK30 per hour.` [2 marks]

c)

`123456` [2 marks]

Question 3

a)

```
Point(0.0,0.0)
Point(0.0,1.0)
Point(1.0,0.0)
Point(1.0,1.0)
```

 [4 marks]

b)

```
(2.0,3.0)
```

 [4 marks]

c) companion [2 marks]

Question 4

- a) A configuration change occurs when the state of the device changes so radically that the easiest way for the system to resolve the change is to destroy and rebuild the activity. [2 marks]
- b) Rotating the device from portrait to landscape or vice versa, changing the language of an app, plugging in a hardware keyboard. [3 marks]
- c) onPause, onStop, onDestroy, onCreate, onStart, onResume [3 marks]
- d) rememberSaveable [2 marks]

Question 5

a)

```
Red
Blue
Green
```

 [3 marks]

- b) Asynchronously [1 mark]
- c) Lines 5 and 9 [2 marks]
- d) No. [1 mark]
- e) runBlocking creates a CoroutineScope within which we can call functions like launch. It causes the calling thread to block until it is finished. If it is removed, then you won't be able to call the launch function – you will get an “Unresolved reference: launch” error message. [3 marks]

Question 6

- a) SELECT subject, sender FROM email;
- b) SELECT COUNT(*) FROM email;
- c) SELECT MAX(received) FROM email;
- d) SELECT DISTINCT sender FROM email;
- e) SELECT * FROM email WHERE folder = 'inbox';

[2 marks for each part]

Question 7

- a) Opportunistic execution means that WorkManager does your background work as soon as it can. Guaranteed execution means that WorkManager takes care of the logic to start your work under a variety of situations, even if you navigate away from your app. [2 marks]
- b) Many possibilities. For example, periodically querying for latest news stories, applying filters to an image and then saving the image, and periodically syncing local data with the network. [1 mark]
- c) A Worker object performs work synchronously on a background thread, whereas a CoroutineWorker provides interoperability with Kotlin coroutines so that its work can be suspended. [2 marks]
- d) A WorkRequest object represents a request to do some work. You define the work by overriding the WorkRequest's doWork() method. The two concrete implementations of WorkRequest are OneTimeWorkRequest and PeriodicWorkRequest. OneTimeWorkRequests are used to define non-repeating work; PeriodicWorkRequests are used to define work that is repeated periodically. [5 marks]

Question 8

- a) True
- b) False
- c) True
- d) False
- e) True
- f) True
- g) True
- h) False
- i) True
- j) True