

PFI Re-exam 2018 Answers

Question 1

a) A

b) A

c) D

d) C

e) C

[2 marks each]

Question 2

a) B

b) B

c) C

d) A

e) D

[2 marks each]

Question 3

a) C

b) C

c) s1 and s2 reference to different String objects

d) super

e)

Person

Student

[2 marks each]

Question 4

a) C

b) D

c) D

d) A

e) B

[2 marks each]

Question 5

a) C

b) B

c) A

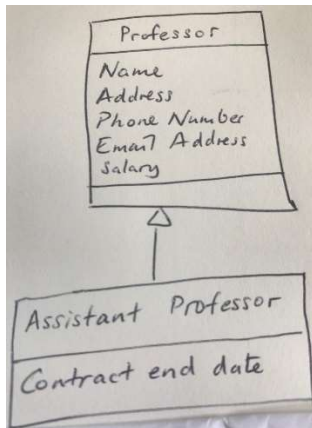
d) B

e) A

[2 marks each]

Question 6

- a) Sequence diagram
- b) When Member type is equal to VIP
- c) Notification
- d) c:Courier
- e) Synchronous
- f) Class diagram
- g) 0 or more.
- h) Marks received
- i)



- j) Add Student, Drop Student

[1 mark for each part]

Question 7

- a) B
- b) C
- c) C
- d) B
- e) D

[2 marks each]

Question 8

- a) Activity, Service, Content Provider, Broadcast Receiver [1/2 mark for each correct type]
- b) A
- c) D
- d) A
- e) C

[2 marks each]

Question 9

- a) LinearLayout
- b) Two views: a TextView and a Button. (Also accept Three views: A TextView, a Button and a LinearLayout ViewGroup.)
- c) The property indicates that the View should be just wide enough to show its content.
- d) “@id/” indicates that there should be a constant defined in R.java called “text” within the id static inner class. The + sign indicates that this is the first time that this constant is defined and that it should be added at this point to R.java.
- e) “vertical” indicates that each new View added to the layout should be added in a vertical column rather than from left to right.

[2 marks each]

Question 10

- a) [1/2 mark each sub-part]
 - i. Example of a motion sensor: accelerometers, gravity sensors, gyroscopes, rotation vector, step counters and detectors
 - ii. Environment sensors: ambient temperature, light, pressure, relative humidity, temperature
 - iii. Position sensors: game rotation vector, geomagnetic rotation vector, magnetic field sensors, orientation, proximity
 - iv. Software sensors: gravity, linear acceleration, orientation, rotation vector
- b) If getMinDelay returns 0, then this means the sensor is a streaming sensor. If it returns another value, then this is the (minimum) number of microseconds between sensor readings supported by that sensor.
- c) onAccuracyChanged() and onSensorChanged().
- d) Sensors should be unregistered in the onPause lifecycle method, otherwise they will continue to use power while the app is paused. Sensor listeners should also be unregistered before an app is killed, which could happen when the Activity is in the paused state. Because sensor listeners are unregistered in the onPause method, they need to be registered again in the onResume method, as this method is called if the Activity is given focus again after being paused.
- e) [1/2 mark each subpart]
 - i. x increases
 - ii. y increases
 - iii. z = the value of g, the acceleration due to gravity (ca. 9.81 m/s²).
 - iv. 0

[2 marks for each part]