

KASNEB

CICT PART III SECTION 5

MOBILE APPLICATION DEVELOPMENT

THURSDAY: 24 November 2016.

Time Allowed: 3 hours.

Answer ALL questions. Marks allocated to each question are shown at the end of the question.

QUESTION ONE

- (a) Describe three ways that you would use to test memory leak of a mobile application. (3 marks)
- (b) Discuss three techniques used by mobile application developers to enable an application to support varied screen sizes of different mobile devices. (6 marks)
- (c) XYZ is a mobile service provider that charges call cost per second. The call rate is Sh.2.00 per minute. James Muna's call lasted five minutes.
- Required:**
Using Objective C programming language, write code snippet to calculate the total call cost for James Muna. Ensure the call cost is displayed on the screen for five seconds. (4 marks)
- (d) (i) Citing four reasons, justify why an organisation might opt to run an application on unstructured supplementary service data (USSD) system. (4 marks)
- (ii) Assess three differences between USSD and short message service (SMS). (3 marks)
- (Total: 20 marks)**

QUESTION TWO

- (a) Using an illustration, explain the purpose of a "gradle" tool in applications development. (3 marks)
- (b) Consider the scenario below:
In an Android application, the phone number to be dialled is received as a string variable called "Callno".
The application should only dial "Callno" if it is not an empty string else it should send a message "You have not dialled any number" to the screen.
If the "Callno" starts with asterisk (*), the application sends the message, "This number cannot be dialled", else the number is dialled.
- Required:**
A code segment that would implement the above requirements for Windows or an Android phone. (5 marks)
- (c) Write a CSS style code to format mobile user interface paragraph with red font colour and a font size of 1.5 cm. (2 marks)
- (d) Given the code snippet below, write a jQuery code that would hide the image when the user clicks on it.
- ```
<div class = "content">
<p> This is my image </p>
<p class = "Loader" </p>
</div>
```
- (4 marks)
- (e) Distinguish between "state" and "behaviour" of an object as used in Objective C. (2 marks)
- (f) Discuss four Java classes related to the use of sensors on the Android platform. (4 marks)
- (Total: 20 marks)**

**QUESTION THREE**

- (a) Explain four ways of reducing page load time in mobile applications. (4 marks)
- (b) Highlight three cross platform mobile development tools. (3 marks)
- (c) Describe how you would set up a smartphone to be used as an emulator for a mobile application. (3 marks)
- (d) Consider the phone specifications given below:  
LTE, 169g (5.96 oz), v6.0.1 (Marshmallow), Octa-core and Li-ion 3500 mAh.  
**Required:**  
Interpret the above specifications. (5 marks)
- (e) Discuss the relationship between Internet of Things (IOT) and mobile applications. (5 marks)

**(Total: 20 marks)**

**QUESTION FOUR**

- (a) Contrast between application security models of Apple iOS and Android based phones. (8 marks)
- (b) Write code snippet to demonstrate how you could implement a mobile database named "MyDatabase" with a table named "Contacts" containing columns; id, name and email using SQLite. (5 marks)
- (c) Describe three mobile application security testing tools. (3 marks)
- (d) Using an illustration, explain the architecture of an iPhone operating system. (4 marks)

**(Total: 20 marks)**

**QUESTION FIVE**

- (a) (i) Differentiate between a fragment and an activity in the context of mobile applications. (2 marks)
- (ii) Describe the relationship between a fragment and an activity. (2 marks)
- (iii) Write code to demonstrate how you could add two fragments to an activity layout. (6 marks)
- (b) Explain the importance of content provider in mobile applications. (2 marks)
- (c) Using a code snippet, explain a "toast" as used in mobile application interface. (3 marks)
- (d) Describe "IMEI" as used in mobile phones. (2 marks)
- (e) Explain three uses of intents in the context of mobile application development. (3 marks)

**(Total: 20 marks)**