KASNEB

CICT PART III SECTION 5

MOBILE APPLICATION DEVELOPMENT

THURSDAY: 26 November 2015. **Time Allowed: 3 hours.**

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

QUESTION ONE

(a) Explain the following terms in the context of mobile application development:

(i) Mobile computing. (2 marks)

(ii) Mobile browser. (2 marks)

(iii) Mobile architecture. (2 marks)

(b) The table below shows the properties of two types of mobile operating systems; Android and iOS.

Property	Android applications	iOS applications
Programming language		
Integrated development environment		
Framework		
Hardware deployment		
Installation package option		
Emulator availability		

Required:
Complete the above table. (6 marks)

(c) Examine four limitations to the full exploitation of the inherent power of mobile connectivity. (8 marks)
(Total: 20 marks)

QUESTION TWO

(a) Describe four phases of mobile application development. (8 marks)

(b) In order to make an alert dialog in Android programming, you need to make an object of AlertDialogBuilder which is an inner class of AlertDialog.

With reference to the above statement, describe four methods provided by the builder class to customise the alert dialog. (8 marks)

(c) Distinguish between "multi-threading" and "multi-tasking" as used in iOS application development. (4 marks)
(Total: 20 marks)

QUESTION THREE

(a) Examine four essential building blocks of an Android application. (8 marks)

(b) Describe six methods that could be used during an Android activity life cycle process. (6 marks)

(c) With the aid of an example, differentiate between "default resources" and "alternative resources" in relation to the development of mobile applications. (6 marks)
(Total: 20 marks)

QUESTION FOUR

(a) Explain the meaning of the following activities in the context of mobile application development:

(i) Regression testing. (2 marks)

(ii) Application rating. (2 marks)

(iii) Promotional content. (2 marks)

(b) Describe three tools that could be used to test mobile applications for the Android platform. (6 marks)

(c) Consider the code below which is generated from Xamarin software on an iOS platform:

```
public partial class Login: DialogViewController{
    public Login ( ) : base (UITableViewStyle. Grouped, null) {
        Root = new RootElement ("Login" ) {
            new Section ("First Section" ) {
                new StringElement ("Hello", ( ) => {
                    new UIAlertView ("Waw", "Thanks for tapping!", null ,
                        "Continue") .Show ( ) ;
                } ) ,
                new EntryElement ("Name" , "Enter your name" , string.Empty)
            },
            new Section ("Second Section") {
            },
        } ;
    }
}
```

Required:

(i) Design the initial window that would appear after compiling the code above. (5 marks)

(ii) Draw a window that would be displayed on clicking the "Hello" entry. (3 marks)

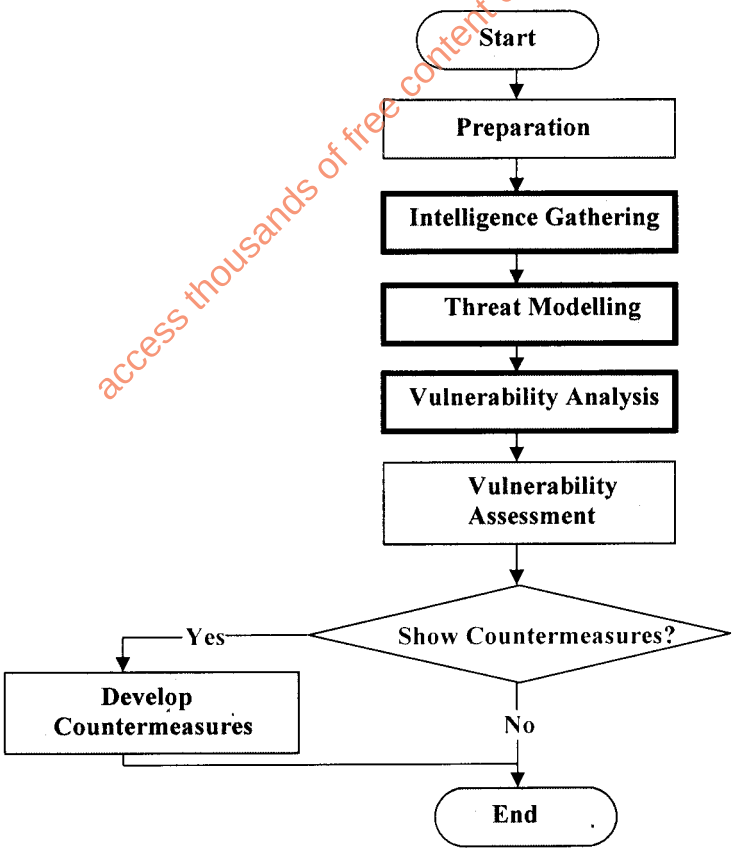
(Total: 20 marks)

QUESTION FIVE

(a) Suggest five ways in which you would improve the security and privacy of mobile applications. (5 marks)

(b) Citing their functionalities, enumerate six user interface elements of an iOS integrated application development environment. (6 marks)

(c) The flowchart below represents a mobile security testing guide similar to that provided by the open web application security project (OWASP):



Required:
Highlighting the differences to the conventional testing process in computing in each case, examine the following stages shown in the diagram above:

(i) Intelligence gathering. (3 marks)

(ii) Threat modelling. (3 marks)

(iii) Vulnerability analysis. (3 marks)

(Total: 20 marks)

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