

kasneb

CICT PART III SECTION 5

MOBILE APPLICATION DEVELOPMENT

THURSDAY: 24 May 2018.

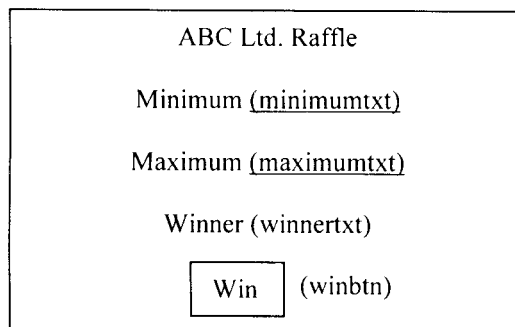
Time Allowed: 3 hours.

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

QUESTION ONE

- (a) (i) Explain the “application not responding” (ANR) problem in mobile applications. (2 marks)
- (ii) Suggest a remedy for the problem in (a) (i) above. (2 marks)
- (b) Explain the importance of NSObject class in iOS programming. (2 marks)
- (c) Interpret the following statement in android application development:  
“The file R.java should never be changed by programmers”. (2 marks)
- (d) ABC Ltd. is in the process of running a raffle. To pick the winners, the management has decided to develop a windows phone application. The winner is to be picked randomly given the minimum raffle number and the maximum raffle number.

The diagram below shows the expected window of the application:



The names of the objects on the windows are indicated on the diagram using brackets.

Required:

Prepare a windows application to pick the winner when the button “winbtn” is clicked. (8 marks)

- (e) Interpret the following specifications of a smartphone:

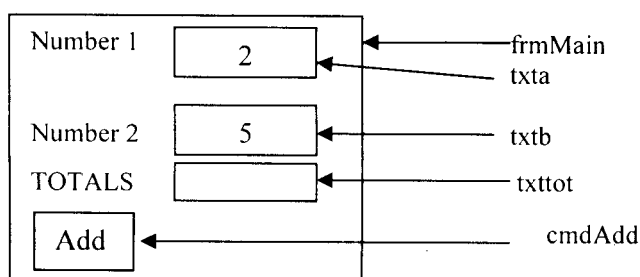
- 5.5”.
- A10 fusion chip.
- Quad-LED True tone flash.
- Wi-Fi with MIMO.

(4 marks)

(Total: 20 marks)

QUESTION TWO

- (a) Use the form below to answer the question that follows:



Write a snippet for a JavaScript function called getTotals to calculate the sum of two numbers entered by a user and display the total using a pop-up dialogue box. (6 marks)

- (b) iOS is a mobile operating system created and developed by apple exclusively for its hardware. The language used in iOS development is objective C.

**Required:**

- (i) Illustrate how you would declare an objective C method to calculate the area of a rectangle. (3 marks)
- (ii) Write a statement to call the method in (b) (i) above within the same class. (2 marks)
- (iii) Write a syntax for the implementation file as used in objective C. (1 mark)

- (c) Android resources are broken down into application and system resources. Application resources are defined by the developer within the Android project files and are specific to an application:

**Required:**

- (i) Write an android code that would be used to retrieve a system resource string called "OK" from within the activity class. (2 marks)
- (ii) Write an XML string resource file code to display the string "I Love Coding" on a mobile phone browser. (2 marks)
- (iii) Write an XML colour resource file code to display the browser background colour as blue and red text colour using 24 bit colour format. (4 marks)

**(Total: 20 marks)**

**QUESTION THREE**

- (a) Examine the code below:

```
{
  "contacts": [
    {
      "id": "k001"
      "name": "Mary",
      "email": "infor@xyzb.org",
      "address": "Nakuru",
      "gender": "female",
      "phone": {
        "mobile": "+254123456789",
        "office": "+254020472376",
      }
    }
  ]
}
```

**Required:**

Interpret the code given in terms of JSONObject and JSONArray. (3 marks)

- (b) The traditional Systems Development Life Cycle (SDLC) methodology undergoes five key phases of requirements determination, design, development, implementation/release and maintenance.

**Required:**

Under each phase, discuss how you could build security for your mobile applications. (5 marks)

- (c) Interpret the following JQuery syntax:

(i) `$(".test").hide( )`. (1 mark)

(ii) `$("#test").hide( )`. (1 mark)

- (d) Define the term "geofencing" as used in mobile application development. (2 marks)

- (e) Consider the android code below:

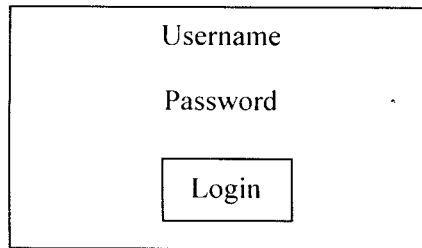
```
SQLiteDatabase mydatabase = openOrCreateDatabase ("visitor");
```

**Required:**

- (i) Identify the errors in the code and rewrite the code correctly. (2 marks)
  - (ii) Write an android code to create a table named "tourists" in the database "visitor" created in (e) (i) above with the columns: country of type VarChar, names of type VarChar and duration of type VarChar and input the following data in the table:  
  
(USA, JACKSON, 4 WEEKS) (6 marks)
- (Total: 20 marks)**

**QUESTION FOUR**

- (a) Identify four locations where a USSD code mobile application could reside. (4 marks)
- (b) The window below represents a mobile application login screen.



**Required:**

- An XML code to create the above window. (8 marks)
  - (c) (i) Discuss two challenges of mobile application testing. (4 marks)
  - (ii) Highlight four criteria that should be taken into consideration when performing sanity test on mobile applications. (4 marks)
- (Total: 20 marks)**

**QUESTION FIVE**

- (a) Write a JQuery code snippet to change the background colour of a <p> element to blue when the mouse pointer hovers over it. (2 marks)
- (b) Study the code extract below:

```
url connection.h
#import<foundation/foundation.h>
@interface UrlConnection:NSObject
@property NSString *Url;
_(void) Connect;
+(Bool) CanHandleRequest:NSString*(type for Url:(NSString*)Url;
@end
```

**Required:**

Describe the functions of the following line statements in the code above:

- (i) Import. (2 marks)
  - (ii) @Interface. (2 marks)
  - (iii) :NSObject. (2 marks)
  - (iv) “\_” and “+”. (2 marks)
  - (c) Describe two uses of breakpoint in context of mobile programming. (2 marks)
  - (d) Compare data security in short message service (SMS) banking and unstructured supplementary service data (USSD) banking. (4 marks)
  - (e) Describe two issues in iOS memory management. (4 marks)
- (Total: 20 marks)**

.....