kasneb

CICT PART III SECTION 5

MOBILE APPLICATION DEVELOPMENT

THURSDAY: 20 May 2021. **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 phases of the running of a mobile application:

(i) OnCreate ( ) (2 marks)

(ii) OnStart ( ) (2 marks)

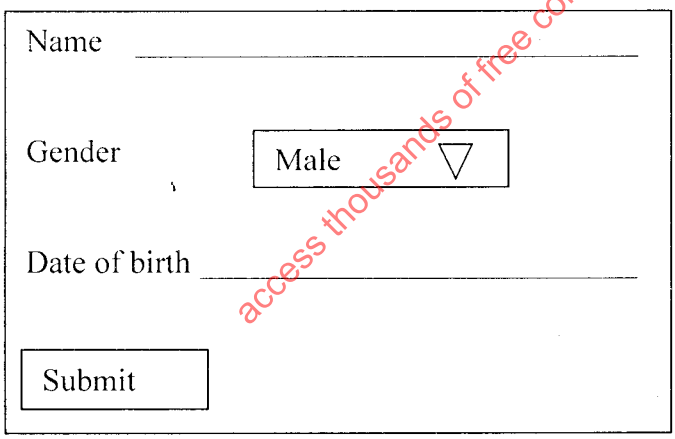
(b) (i) Define the term "web based applications". (2 marks)

(ii) Highlight two advantages of web based applications. (2 marks)

(c) Mary realised that the old mobile phones had physical keys on their keyboards while the new smart phones have virtual keyboards.

In the context of mobile application development, compare the two types of keyboards choosing the most suitable. (4 marks)

(d) Create HTML code to display a form on a phone as illustrated below:



Note: Gender is a combo box with options Male and Female.

(8 marks)
(Total: 20 marks)

QUESTION TWO

(a) Identify four challenges experienced by mobile application developers. (4 marks)

(b) David, a senior programmer in a leading mobile application organisation advised the new programmers they recently recruited to use medium setting resources such as graphics.

Support his advice. (4 marks)

(c) Distinguish between an activity and a task as used in mobile application development. (4 marks)

(d) Consider the USSD code below:

```
function   options  (  ){
$sessionId =   $_GET [“sessionId”] ;
$servicecode  = $_POST [“servicecode”] ;
$phonenumber = $_POST [“Phonenumber”] ;
$ans              = $_GET [“ans”];
    If ($ans   =   “ ”) {
      $response  = “what operation do you want\n” ;
      $response  = “1. Pay \n” ;
      $response  = “2. Reedem points\n” ;
      }else if ({ans = = “1” {
          $response = “pay using bank transfer \n” ;
          $response = “use mobile money \n” ;
      } else if ({ans = = “2”) {
          $response = “Redeem to my line \n” ;
          $response = “Redeem to other number \n” ;
      } else if ($ans = = “1 * 1”)  {
          Bank T ( ):
      } else if ($ans = = “1*2”) {
          Mobile M(  ) ;
      } else if ($ans = = “2 * 1”) {
          Redeeming line ( ) ; }
      else ($ans = = “2*2”) {
          Redeemanother ( );
          }
```

Required:

(i) Identify two statements with errors and rewrite the statements correctly. (2 marks)

(ii) Construct a user manual for the USSD code provided. (6 marks)

(Total: 20 marks)

QUESTION THREE

(a) Define the term activity stack as used in mobile applications. (2 marks)

(b) Highlight eight steps followed when publishing a mobile application in a chronological order. (4 marks)

(c) Distinguish between infinite scroll and pagination as used in a mobile application. (4 marks)

(d) A string “Fname” is captured by a mobile application. A programmer requires to check if the length is zero and if so prompt the user to input again using a prompt variable response.

Required:

(i) An android code to achieve the above. (3 marks)

(ii) A swift code to achieve the above. (3 marks)

(e) Using a suitable example, create a code segment to show how to handle exceptions in Android Programming.

Use division by zero exception. (4 marks)

(Total: 20 marks)

QUESTION FOUR

(a) Write a Java program to count the number of words in a string using HashMap. (6 marks)

(b) Assess the importance of having an enterprise App store. (4 marks)

(c) Consider the following code:

```
Struct Tutorial {
   Var difficulty: int = 1
   }
   Var tutorial1 = Tutorial ( )
Var tutorial2 = tutorial1
tutorial2.difficulty = 2
```

Required:

(i) Explain the values of tutorial1.difficulty and tutorial2.difficulty. (2 marks)

(ii) Explain the effect on output if Tutorial was a class. (2 marks)

(d) Explain the output of the program below:

```
delegate void printer ( ) ;
static void main ( )
{
   list<printer> printers = newlist <printer> ( ) ;
   int      i = 0 ;
   for (i <10; i++)
   {
    printers.Add (delegate [console.writeline (i) ; ] );
   }
   for each (Var printer in printers)
   {
    printer ( ) ;
   }
}
```

(6 marks)
(Total: 20 marks)

QUESTION FIVE

(a) Differentiate between "performance testing" and "memory leakage testing" as used in Mobile Application development. (4 marks)

(b) Consider the following method as used in objective C programming:

```
 (void) printfontcopyright {
   CTFontRef Font = CTFontCreateWithName (CFSTR ("Helvetica"), 12, Null));
   Nsstring * FontName = CTFontCopyName (Font, KCTFontCopyrightNameKey) ;
   Nslog(@"%@", FontName) ;
   CFRelease (Font);
}
```

Required:

(i) Explain what needs to be modified in order to correctly manage memory when compiled with ARC. (4 marks)

(ii) Describe 'EUCALYPTUS" as used in Mobile Cloud Computing. (2 marks)

(c) Write HTML code to form a task to show the values below in a tabular form with headings as AdmNo, Student name, Subject name and values as:

John, Web design
Mary, Programming
Jane, Networking

(6 marks)

(d) Distinguish between serialisable and parcelable as used in Mobile App Development. (4 marks)

(Total: 20 marks)

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