Level 2 Create software components using Visual Basic (7266/7267-204)

e-Quals
Assignment guide for Candidates
Assignment B
About City & Guilds
City & Guilds is the UK’s leading provider of vocational qualifications, offering over 500 awards across a wide range of industries, and progressing from entry level to the highest levels of professional achievement. With over 8500 centres in 100 countries, City & Guilds is recognised by employers worldwide for providing qualifications that offer proof of the skills they need to get the job done.

City & Guilds Group
The City & Guilds Group includes City & Guilds, ILM (the Institute of Leadership & Management) which provides management qualifications, learning materials and membership services, NPTC which offers land-based qualifications and membership services, and HAB (the Hospitality Awarding Body). City & Guilds also manages the Engineering Council Examinations on behalf of the Engineering Council.

Equal opportunities
City & Guilds fully supports the principle of equal opportunities and we are committed to satisfying this principle in all our activities and published material. A copy of our equal opportunities policy statement is available on the City & Guilds website.

Copyright
The content of this document is, unless otherwise indicated, © The City and Guilds of London Institute 2007 and may not be copied, reproduced or distributed without prior written consent.

However, approved City & Guilds centres and learners studying for City & Guilds qualifications may photocopy this document free of charge and/or include a locked PDF version of it on centre intranets on the following conditions:

- centre staff may copy the material only for the purpose of teaching learners working towards a City & Guilds qualification, or for internal administration purposes
- learners may copy the material only for their own use when working towards a City & Guilds qualification

The Standard Copying Conditions on the City & Guilds website also apply.

Please note: National Occupational Standards are not © The City and Guilds of London Institute. Please check the conditions upon which they may be copied with the relevant Sector Skills Council.

Publications
City & Guilds publications are available on the City & Guilds website or from our Publications Sales department at the address below or by telephoning +44 (0)20 7294 2850 or faxing +44 (0)20 7294 3387.

Every effort has been made to ensure that the information contained in this publication is true and correct at the time of going to press. However, City & Guilds’ products and services are subject to continuous development and improvement and the right is reserved to change products and services from time to time. City & Guilds cannot accept liability for loss or damage arising from the use of information in this publication.

City & Guilds
1 Giltspur Street
London EC1A 9DD
T +44 (0)20 7294 2800
F +44 (0)20 7294 2400
www.cityandguilds.com
learnersupport@cityandguilds.com
## Contents

**Create software components using Visual Basic (7266/7267-204)**

Assignment B

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction – Information for Candidates</td>
<td>2</td>
</tr>
<tr>
<td>Candidate instructions</td>
<td>3</td>
</tr>
<tr>
<td>Note</td>
<td>6</td>
</tr>
</tbody>
</table>
Level 2 Create software components using Visual Basic (7266/7267-204) Assignment B
Introduction – Information for Candidates

About this document
This assignment comprises part of the assessment for Level 2 Create software components using Visual Basic (7266/7267-204).

Health and safety
You are asked to consider the importance of safe working practices at all times.

You are responsible for maintaining the safety of others as well as your own. Anyone behaving in an unsafe fashion will be stopped and a suitable warning given. You will not be allowed to continue with an assignment if you compromise any of the Health and Safety requirements. This may seem rather strict but, apart from the potentially unpleasant consequences, you must acquire the habits required for the workplace.

Time allowance
The recommended time allowance for this assignment is four hours.
Candidates are advised to read all instructions carefully before starting work and to check with your assessor, if necessary, to ensure that you have fully understood what is required.

Time allowance: four hours

Assignment set up: A scenario is provided for candidates in the form of a company specification for a service they require.

This assignment is made up of two tasks

- **Task A** - provides a detailed design specification for software to demonstrate password protected software with simulated disco lights.
- **Task B** - provides presentation criteria that should be followed by candidates when producing their work.

Scenario

A software development company, Disco Systems is developing a program for use as demonstration software for clients. As a contracted employee of Disco Systems, you have been asked to create and test the software.

Task A

*Candidates should use the following detailed specification to fulfil the company’s requirements.*

In this task you are required to use shape controls to simulate a time-controlled disco light system. Entry to the system is to be controlled by a password which the user must enter into a text box – when the correct password is entered the text box background colour must change to green. An input box must appear so that the user can enter the number of times that a complete rotation of disco lights is to be carried out. A repeating sequence to rotate the colours in the shape controls is then executed with delays to hold the colours determined by a timer control.

Your completed form should appear similar to the screen image shown below.
Save the project at regular intervals as you work through the task. Save the form file as frmDisco and the project file as TaskA.

1. Set up the following constants in the General Declarations section.
   
   Const RED = &HFF&
   Const LIGHTBLUE = &HFFFF&
   Const GREEN = &HFF00&
   Const BLUE = &HFF0000
   Const PINK = &HFF00FF

2. Set the Caption property of the form to: Task A your name and the date.

3. Draw, size and position a shape control to act as a light. Name the control shpLight. Set the Shape to Circle, the FillColor to green, the FillStyle to Solid and the BorderStyle to Transparent.

4. Copy the shape control four times to set up a control array of shape controls. Set the FillColor of the four shape controls as red, dark blue, light blue and pink.

5. Draw a timer control. Name the control tmrLight and set its Enabled property to False.

6. Draw, size and position a text box control. Name the control txtCount and set its Enabled property to False.

7. Draw size and position a text box control. Name the control txtPassword and set the PasswordChar property to *.

8. Select the group of five shape controls and set the Visible property for the group to False.

9. In the General Declarations section declare the variables LightState and CountNumber as integers and LoopNumber as a string.

10. Code the Form_Load sub procedure to set the values of LightState and CountNumber to 0.

11. Decide on a short password that will start the system running. Code the txtPassword_Change sub procedure to carry out the following actions, in the order given, in response to the correct password being entered:
    a. change the BackColor of txtPassword to green (to indicate the correct password has been entered) and use the Refresh method to update the colour immediately
    b. use a For…Next loop to create a one or two second delay, with an instruction within
the loop that sets txtPassword text to "" (empty)
c. set the Visible property of the txtPassword text box control to False
d. use an InputBox$ function to output a prompt and obtain a string from the user and place the string in the variable LoopNumber. (This value specifies how many complete rotations of the colours will be executed.)
e. use a loop to set the Visible property of each shape control to True
f. set the tmrLight Enabled property to True
g. call the tmrLight_Timer sub procedure

12 Use the Select Case construct to code the tmrLight_Timer event sub procedure to change the FillColor property of the shape controls, for the required time, according to the value of the variable LightState, as below.

LightState = 0
    shpLight(0) set FillColor to RED
    shpLight(1) set FillColor to BLUE
    shpLight(2) set FillColor to GREEN
    shpLight(3) set FillColor to LIGHTBLUE
    shpLight(4) set FillColor to PINK
    set the Interval property of the timer control to hold the colours for 3 seconds
    set LightState to 1

LightState = 1
    shpLight(0) set FillColor to PINK
    shpLight(1) set FillColor to RED
    shpLight(2) set FillColor to BLUE
    shpLight(3) set FillColor to GREEN
    shpLight(4) set FillColor to LIGHTBLUE
    set the Interval property of the timer control to hold the colours for 3 seconds
    set LightState to 2

LightState = 2
    shpLight(0) set FillColor to LIGHTBLUE
    shpLight(1) set FillColor to PINK
    shpLight(2) set FillColor to RED
    shpLight(3) set FillColor to BLUE
    shpLight(4) set FillColor to GREEN
    set the Interval property of the timer control to hold the colours for 3 seconds
    set LightState to 3

LightState = 3
    shpLight(0) set FillColor to GREEN
    shpLight(1) set FillColor to LIGHTBLUE
    shpLight(2) set FillColor to PINK
    shpLight(3) set FillColor to RED
    shpLight(4) set FillColor to BLUE
    set the Interval property of the timer control to hold the colours for 3 seconds
    set LightState to 4

LightState = 4
    shpLight(0) set FillColor to BLUE
    shpLight(1) set FillColor to GREEN
    shpLight(2) set FillColor to LIGHTBLUE
    shpLight(3) set FillColor to PINK
    shpLight(4) set FillColor to RED
set the Interval property of the timer control to hold the colours for 3 seconds
set LightState to 0
add 1 to CountNumber
check if CountNumber is equal to the value in the LoopNumber string. If the values are
equal then set the Enabled property of the timer control to False
set the Text property of the txtCount text box control to the string value of
CountNumber

13   Add explanatory comments to the code.

14   Test that the program works correctly, use the debug facilities to find any errors and ensure
that the software conforms to the specification.

15   Print a program listing and a printed copy of the form frmDISCO.

**Task B**
*Candidates should follow the criteria listed below when producing their work:*

1   The program conforms to the design specification.

2   The program uses the most appropriate data type(s).

3   Meaningful names are used when declaring variables.

4   The program syntax is consistently indented to aid readability.

**Note**

- Candidates should produce the following for their assessor:
  - A printed program listing.
  - Printout of the frmDisco form.
- At the conclusion of this assignment, hand all paperwork and removable media to the test
  supervisor.
- Ensure that your name is on the removable media and all documentation.
- If the assignment is taken over more than one period, all removable media and paperwork
  must be returned to the test supervisor at the end of each sitting.