UNIVERSITY EXAMINATIONS

UNIVERSITEITSEKSAMENS

UNISA university of south africa

INF2611
SECOND PAPER

May/June 2018

Visual Programming II

Duration 2 Hours

70 Marks

EXAMINERS

FIRST MRS PM GOUWS

SECOND MRS A MATHEW

Closed book examination

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This examination question paper consists of 5 pages

Instructions

- Answer all the questions in the answer book
- The marks are provided in brackets next to the questions
- Good luck!

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Question 1File Handling (10)

a) Python makes use of file handling to retrieve and store data Explain the three steps that are required for working with files You are required to provide commented code to enhance your explanation (5)

b) What does it mean that a file can be opened in a number of modes? Give examples of the modes that may be used, as well as snipettes of code that are used (3)

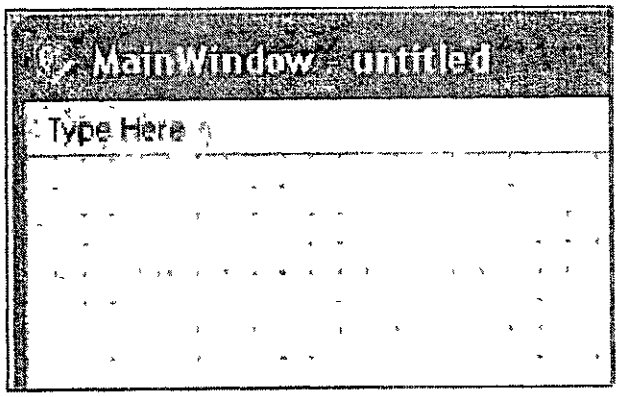
c) What is PyQT? Compare PyQT to command line Provide examples to enhance your explanation (2)

Question 2 Advanced Widgets and Menus (20)

a) What is a widget? Give at least 4 characteristics Provide coded examples to clarify your explanation (4)

b) Explain the purpose of a table widget Give the code that will be used to add data, using the setItem () method (4)

c) What are menus used for, within the development of Python applications? How are menus linked to the Action Editor? (4)



d) An application can include a system clock time displayed in LCD Please complete the code below with relevant comments that refer to the specifics of the code below (8)

```
#showtime.pyw
import sys
from disptime import *
class MyForm(QtGui.QDialog):
  def __init__(self, parent=None):
     QtGui.QWidget.__init__(self, parent)
     self.ui = Ui_Dialog()
     self.ui.setupUi(self)
     # (1) _____
     timer = QtCore.QTimer(self)
     # (2) _____
     timer.timeout.connect(self.showlcd)
     # (3) _____
     timer.start(1000)
     self.showlcd()
  def showlcd(self):
     # (4) _____
     time = QtCore.QTime.currentTime()
     # (5) _____
     text = time.toString('hh:mm')
     # (6) _____
     self.ui.lcdNumber.display(text)

if __name__ == "__main__":
app = QtGui.QApplication(sys.argv)
myapp = MyForm()
myapp.show()
sys.exit(app.exec_())
```

Question 3 Multiple Documents and Layouts (10)

a) What is a multiple-document interface (MDI)? Include the code snippets one would use to implements these document options (4)

b) What are the layout options? Explain which layout is used for specific scenarios. (6)

Question 4 Database Handling (10)

a) Explain, in terms of the components required, how Python code is connected to a database server (3)

b) Name at least four functions that can be used during the accessing of the data from a database For each function, give a coded line to enhance your explanation (3)

c) Consider the Python code for creating a database table Name the fields and the data types used in this application (4)

```
createtable.py
import sys
import MySQLdb
conn=MySQLdb.connect(host="localhost", user="root",
passwd="psw", db="surprise")
cursor=conn.cursor()
try:
  cursor.execute ("""
  create table students (learner_id smallint NOT NULL,
  learner_name char(50),
  modules smallint,
  bonus_balance float)
  """)
except MySQLdb.Error:
  print ("Error in creating learner table")
  sys.exit(1)
cursor.close()
conn.close()
```

Question 5 Database Maintenance (20)

a) Why is error handling required in a database? Explain with coded examples how these can be programmed into the data handling code (4)

b) What is database maintenance? Explain why database maintenance is required Provide examples from your application where database maintenance was implemented. (4)

c) Compare and explain the need for both commit () and rollback () methods when handling data (4)

d) Write the code that searches for a record in the food table according to the food_id The food_id is entered by the user The program should provide a message that the food_id is not found If the food_id is found, the food_description, price and availability needs to be displayed in the correct format on a UI (4)

e) Sketch the UI with clearly labelled widgets that will be used to display the required information as in question 5d above You are welcome to include additional information and also pictures if required (4)