General Certificate of Education
Advanced Subsidiary
Specimen Pre-release material for 2009 and 2010
Month Year

AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

COMPUTING

**COMP1/PR   Problem Solving, Programming, Data
                 Representation and Practical Exercise**

Date   Time

Pre-release material – Instructions for Candidates: Program Language Python

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To be given to candidates on or after 1 April XXXX

Information

- There are 2 parts to this pre-release material:
    - o   Section A: Skeleton Program
    - o   Section B: Test Data.

- This material will be re-printed in the examination paper.

- You are advised to familiarise yourself with this material before the examination.

- You will use both the program and test data in the examination and your teacher will provide you with access to these electronically at the start of the examination.

- You can view/download this material on the AQA Website: www.aqa.org.uk/xxxxxx

COMP1/PR/Python

SECTION A – Skeleton Program

```
Line       Program statements
Number
  1        # written by Examiner team
  2        #
  3        # Completed by: ......................
  4        # Candidate Number: ........
  5        # Centre Number: ........
  6        #
  7        # Some statements are incomplete and
  8        # therefore do not do what they should do
  9        #
 10        # This program is designed to
 11        # accept a user's menu choice to
 12        # 1 - read in a single hexadecimal number
 13        #     and display the binary equivalent
 14        # 2 - read in a text file of hexadecimal numbers and
 15        #     produce a text file of their binary equivalent
 16        # 3 - display the content of a text file
 17        # 4 - finish running the program
 18        #
 19        finished = False
 20        choice = 0
 21
 22        def ShowMenu():
 23          print"""
 24          Please choose an option:
 25          1 - Convert Hex to Binary
 26          2 - Convert a text file of Hex Numbers
 27          3 - Display text file
 28          4 - exit program
 29          -------------------------------------------------------------
 30          """
 31
 32        def GetResponse():
 33          Response = input("Enter Option number: ")
 34          return Response
 35
 36        def Binary(Hex):
 37          Result = ''
 38          BinaryEquivalent = ''
 39          for ThisHexDigit in Hex:
 40            if ThisHexDigit in \
 41            ['1','2','3','4','5','6','7','8','9','0','A','B','C','D','E','F']:
 42              if ThisHexDigit == '0': BinaryEquivalent = ''
 43              elif ThisHexDigit == '1': BinaryEquivalent = ''
 44              elif ThisHexDigit == '2': BinaryEquivalent = ''
 45              elif ThisHexDigit == '3': BinaryEquivalent = ''
 42              elif ThisHexDigit == '4': BinaryEquivalent = ''
 43              elif ThisHexDigit == '5': BinaryEquivalent = ''
 44              elif ThisHexDigit == '6': BinaryEquivalent = ''
 45              elif ThisHexDigit == '7': BinaryEquivalent = ''
 46              elif ThisHexDigit == '8': BinaryEquivalent = ''
 47              elif ThisHexDigit == '9': BinaryEquivalent = ''
 48              elif ThisHexDigit == 'A': BinaryEquivalent = ''
 49              elif ThisHexDigit == 'B': BinaryEquivalent = ''
 50              elif ThisHexDigit == 'C': BinaryEquivalent = ''
 51              elif ThisHexDigit == 'D': BinaryEquivalent = ''
 52              elif ThisHexDigit == 'E': BinaryEquivalent = ''
```

```
53        elif ThisHexDigit == 'F': BinaryEquivalent = ''
54      else:
55    Result = Result + BinaryEquivalent
56    return Result
57
58  def ConvertNumber():
59    Hexadecimal = raw_input('Enter a Hex number: ')
60    Converted = Binary(Hexadecimal)
61    print Converted
62
63  def ConvertFile():
64    FileNameIn = 'Hexdata.dat'
65    HexFile = open(FileNameIn, 'r')
66    for Line in HexFile:
67      print Binary(Line)
68    HexFile.close()
69
70  def DisplayFile():
71    FileName = 'BinaryData.dat'
72    BinaryFile = open(FileName, 'r')
73    for Line in BinaryFile:
74      print Line
75    BinaryFile.close()
76
77  # ************* Main Program Body *******************
78  if __name__ == '__main__':
79      ShowMenu()
80      Choice = GetResponse()
81      if Choice == 1: ConvertNumber()
82      elif Choice == 2: ConvertFile()
83      elif Choice == 3: DisplayFile()
84      elif Choice == 3:  # end program
85      # end if
```

SECTION B – Test Data

```
000000000000
000001110000
000010000100
000010001000
000001110000
001000100010
000100100100
000010101000
000001110000
000000100000
000000100000
000000100000
000001010000
000010001000
000100000100
```

END OF PRE-RELEASE MATERIAL