Version 1.1

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

COMPUTING

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

Date Time

Pre-release material – Instructions for Candidates

To be given to candidates on or after 1 April XXXX

Information

- There are 2 parts to this pre-release material:
  - Section A: Skeleton Program
  - 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

Note: Specimen material for Unit 1 using alternative programming languages will be available shortly.

SECTION A – Skeleton Program

```
 Line       Program statements
Number
     1      Program Example;
     2
     3      {$APPTYPE CONSOLE}
     4
     5       // written by Principal Examiner
     6
     7       // completed by ........................
     8       // Centre Number  ..........
     9       // Candidate Number ........
    10
    11       // some statements are incomplete and
    12       // therefore do not do what they should do
    13
    14       // This program is designed to
    15       //   accept a user's menu choice to
    16       //    1 - read in a single hexadecimal number
    17       //        and display the binary equivalent
    18       //    2 - read in a text file of hexadecimal numbers and
    19       //        produce a text file of their binary equivalent
    20       //    3 - display the content of a text file
    21       //    4 - finish running the program
    22
    23
    24      Uses
    25        SysUtils;
    26
    27      Var Choice: Integer;
    28          Finished: Boolean;
    29
    30        Procedure ShowMenu;
    31        Begin
    32          Writeln ('   Please choose an option');
    33          Writeln;
    34          Writeln ('   1 - Convert a Hex number to Binary');
    35          Writeln ('   2 - Convert a text file of Hex numbers');
    36          Writeln ('   3 - Display text file');
    37          Writeln ('   4 - exit program');
    38          Writeln;
    39        End; // of Procedure ShowMenu
    40
    41        Procedure GetResponse(Var Response: Integer);
    42        Begin
    43          Write (' Enter option number: ');
    44          Readln(Response);
    45        End; // of Procedure GetResponse
```

```
46
47        Function Binary(Hex: String):String;
48        Var HexDigit, NoOfHexDigits : Integer;
49            ThisHexDigit: Char;
50            BinaryEquivalent : String[4];
51        Begin
52          Result := '';
53          NoOfHexDigits := Length(Hex);
54          For HexDigit := 1 To NoOfHexDigits
55            Do
56              Begin
57                ThisHexDigit := Hex[HexDigit];
58                If ThisHexDigit In ['0'..'9','A'..'F']
59                  Then
60                    Case ThisHexDigit Of
61                      '0': BinaryEquivalent := '';
62                      '1': BinaryEquivalent := '';
63                      '2': BinaryEquivalent := '';
64                      '3': BinaryEquivalent := '';
65                      '4': BinaryEquivalent := '';
66                      '5': BinaryEquivalent := '';
67                      '6': BinaryEquivalent := '';
68                      '7': BinaryEquivalent := '';
69                      '8': BinaryEquivalent := '';
70                      '9': BinaryEquivalent := '';
71                      'A': BinaryEquivalent := '';
72                      'B': BinaryEquivalent := '';
73                      'C': BinaryEquivalent := '';
74                      'D': BinaryEquivalent := '';
75                      'E': BinaryEquivalent := '';
76                      'F': BinaryEquivalent := '';
77                    End // of Case
78                  Else ;
79                Result:= Result + BinaryEquivalent;
80              End; // of For loop
81          End;  // of Function Binary
82
83        Procedure ConvertNumber;
84        Var Hexadecimal, Converted: String;
85        Begin
86          Write ('Enter a Hexadecimal number: ');
87          Readln (Hexadecimal);
88          Converted := Binary(Hexadecimal);
89          Writeln (Converted);
90        End; // of Procedure ConvertNumber
91
92        Procedure ConvertFile;
93        Var FileNameIn : String;
94            HexFile : TextFile;
95            HexNumber, BinaryNumber : String;
96        Begin
```

```
 97          FileNameIn := 'HexData.dat';
 98          AssignFile (HexFile, FileNameIn);
 99          Reset (HexFile);
100          While Not EoF (HexFile)
101            Do
102              Begin
103                Readln(HexFile, HexNumber);
104                BinaryNumber := Binary(HexNumber);
105                Writeln(BinaryNumber);
106              End;
107          CloseFile (HexFile);
108        End; // of Procedure ConvertFile
109
110        Procedure DisplayFile;
111        Var FileName: String; Bit: Char;
112            BinaryFile: TextFile;
113        Begin
114          FileName := 'BinaryData.dat';
115          AssignFile (BinaryFile, FileName);
116          Reset (BinaryFile);
117          While Not EoF (BinaryFile)
118            Do
119              Begin
120                Read(BinaryFile, Bit);
121                Write(Bit);
122              End;
123          CloseFile (BinaryFile);
124        End; // of Procedure DisplayFile
125
126        //************* Main Program Body ********************
127      Begin
128        Finished := False;
129
130          ShowMenu;
131          GetResponse(Choice);
132            Case Choice Of
133              1: ConvertNumber;
134              2: ConvertFile;
135              3: DisplayFile;
136              4:              // end program
137            End; //of Case
138
139      End.
```

SECTION B – Test Data

000000000000
000001110000
000010001000
000010001000
000001110000
001000100010
000100100100
000010101000
000001110000
000000100000
000000100000
000000100000
000001010000
000010001000
000100000100
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END OF PRE-RELEASE MATERIAL