UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

MARK SCHEME for the October/November 2011 question paper for the guidance of teachers

9691 COMPUTING

9691/22 Paper 2 (Written Paper), maximum raw mark 75

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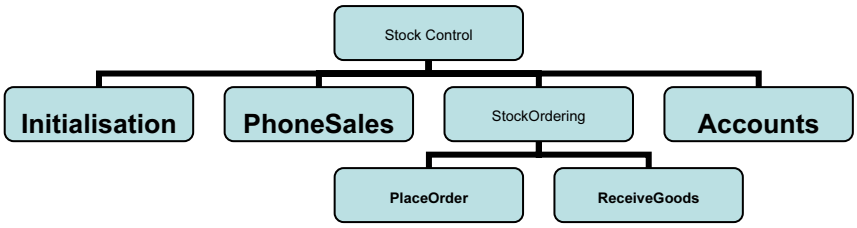
1 **(a)** e.g.
-each can work on individual modules
-modules can be written in parallel
(answer must be specific to this scenario) Max [1]

(b) *Each box correctly labelled (Initialisation, PhoneSales, Accounts) Order significant*



[1]

(c) *1 mark for 2 boxes under StockOrdering*
1 mark for correct labelling [2]

(d) -these will be local variables
-that only have effect in the module they are in // local scope
-stored in different memory locations
-and have no meaning outside that module Max [2]

(e) **(i)** -keywords/reserved words
-a word in the vocabulary of the language
-that can only have the meaning defined in that language Max [1]

(ii) Any keyword // word breaking their language's rule [1]

(iii) e.g. Visual Basic:
-names must begin with a letter
-must not contain a space/punctuation characters/certain characters
-must be unique in their block/scope
-can't be more than 64 characters
-can't be a keyword [3]

(f) **(i)** 580 CAO [1]

(ii) (a-b)*0.1 [1]

(iii) Black box CAO [1]

(g) **(i)** -valid/normal data
-extreme/boundary data [2]

(ii) *6 different types of test data sets + 6 sensible reasons*
Reason must relate to the scenario
Value + correct reason = 1 mark [6]

(h) (i) (ContractLength=12) OR (ContractLength=18) OR (ContractLength=24)

1 mark for 3 separate correct conditions
1 mark for ORs

Alternative answer:
ContractLength IN [12,18,24]
2 marks (1 mark for IN, 1 mark for [12,18,24]) [2]

(ii) (FreeTexts >= 0) AND (FreeTexts <= 600)

Alternative: (FreeTexts>-1) AND (FreeTexts < 601)

1 mark for 2 separate correct conditions
1 mark for AND

Alternative answer:
NOT ((FreeTexts < 0) OR (FreeTexts > 600)) [2]

(iii) -data outside expected range / invalid data could be entered
-the program would not find an associated record/data [2]

2 (a) (i) -Valid data entered CAO [1]

(ii) -Invalid data. Try again CAO [1]

(b) e.g. Pascal

```
READLN (NumberOfYears);
CASE NumberOfYears OF
  0..2: WRITELN('Valid data entered');
  ELSE WRITELN('Invalid data. Try again');
END;
```

e.g. VB6

```
NumberOfYears = txtBox.Text
SELECT CASE NumberOfYears
  CASE 0 TO 2
    MsgBox "Valid data entered"
  CASE ELSE
    MsgBox "Invalid data. Try again"
END SELECT
```

e.g. VB 2005

```
NumberOfYears = Console.ReadLine
SELECT CASE NumberOfYears
  Case 0 TO 2
    Console.WriteLine("Valid data entered")
  Case Else
    Console.WriteLine("Invalid data. Try again")
END SELECT
```

e.g. C#

```
numberOfYears = Console.ReadLine();
switch (numberOfYears)
{
  case 0:
  case 1:
  case 2:
    Console.WriteLine("Valid data entered");
    break;
  default:
    Console.WriteLine("Invalid data. Try again");
    Break;
}
```

e.g. Java

```
numberOfYears = reader.readLine();
switch (numberOfYears) {
  case 0:
  case 1:
  case 2:
    System.out.println("Valid data entered");
    break;
  default:
    System.out.println("Invalid data. Try again");
    break;
}
```

Accept write.write *instead of* System.out.println

1 mark for correct input
1 mark for CASE statement correct
1 mark for all cases correct
1 mark for correct output for Valid data entered
1 mark for correct output for Invalid data. Try again
1 mark for conditions indented
No marks for pseudocode (give marks for clear code, even if unidentified)
For Python accept if … elif …. elif … else … Max [5]

(c) -Sequence, selection *(in any order, these words only)* [1]

(d) -A process of repeating
-A block of statements/number of steps
-Until some condition is met Max [2]

(e) *1 mark for a counter variable*
1 mark for correctly initialising counter
1 mark for incrementing counter
1 mark for correct condition for terminating
1 mark for correct output from decision [5]

(f)

Field Name	Data Type	Field Size (bytes)	
PlayerID	Integer/byte/shortint	a value within 1–6	*NOT a range*
Sex	Boolean/character	1	
PlayerName	String/Text	a value within 10–50	*NOT a range*
NumberOfYears	Integer/byte/shortint	a value within 1–6	*NOT a range*
DateOfBirth	Date/Integer/String	2/4/6/8/10	

1 mark per cell [10]

(g) (i) -logic (error) [1]

	(i)	(ii)
EITHER	Index ← 1	Index ← 0
OR	WHILE Index < 30	WHILE Index <=30 or WHILE Index < 31
	[1]	[1]

(h)
```
NoOfFemales ← 0
FOR Index ← 1 TO 30
  IF Squad[Index].Sex = 'f'
    THEN
      NoOfFemales ← NoOfFemales + 1
  ENDIF
ENDFOR
```

1 mark for correct FOR loop
1 mark for correct content of IF statement and condition
1 mark for ENDFOR in correct position or equivalent structure [3]

3 (a)

MyWord	i	LENGTH (MyWord)	TempNo	Temp Word[1]	Temp Word[2]	Temp Word[3]	Surprise
cab							
	1						
		3					
			100				
				d			
	2						
			98				
					b		
	3						
			99				
						c	**dbc**

1 mark for correct i (2,3)
1 mark for correct TempWord[1] (d)
1 mark for correct TempWord[2] and TempWord[3] (b and c)
1 mark for correct surprise (dbc) Max [3]

(b) -codes each letter to the next letter [1]

(c) -assigns return value to Surprise
-that value is returned to the function call
-name of function used as a variable Max [2]

(d) -is a subroutine // can be called more than once // can be called from different locations
-given a name/identifier
-may take parameter values from the program
-may return parameter values to the program Max [3]

(e) (i) -indentation
-meaningful/sensible variable names [2]

(ii) -evaluates the ASCII value of the current character
-adds 1 to that value
-puts the new character in current letter position [3]

(f) -joining
-two strings together [2]