Name: _____ **Class:** **Index Number:** _____

Anglo-Chinese School (Barker Road)

PRELIMINARY EXAMINATION 2019

SECONDARY FOUR EXPRESS

COMPUTING PAPER 1

7155/01

2 HOURS

INSTRUCTIONS TO CANDIDATES:

Do not open this booklet until you are told to do so.
Write your name and index number clearly in the spaces at the top of this page.
Write in dark blue or black pen. You may use soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Approved calculators are allowed.

Answer **all** questions.

The number of marks is given in brackets [ ] at the end of each question or part of question.
You should show all your working.
The total mark for this paper is 80.

This paper has 11 pages, inclusive of the cover page.

1 **(a)** Convert 32 KB into bytes.

…….. [1]

(b) Convert 3 MiB into bytes.

…….. [1]

2 Draw a line to match the role to its correct description.

Roles		Description
arithmetic logic unit	●	● Stores data, instructions and the result of processing for immediate use
address bus	●	● Transports required memory location from processor to memory; uni-directional
data bus	●	
control unit	●	● Intermediate or final results produced by the computer; usually in the form of processed data
memory	●	
output	●	● Part of the processor that processes data by performing basic mathematical and logical operations

[4]

3 Insert **four** of the following phrases in the correct space below.

Metropolitan Area Network	Internet protocol	Router
Wide Area Network	Service Set Identifiers	Network Interface Card

(a) ……..…. provides the hardware interface to enable the transfer of data between a device and a network.

(b) ……..….. is a 32-byte string that indicates a wireless access point (WAP) and all devices connected to it.

(c) ……..…….. allows separate networks that use different network protocols to be connected together

(d) ……..…..: Network of computing devices typically spanning across two or more buildings within the same town or city.

[4]

4 Your company is setting up a new office and you as the manager of the new office need to decide to install wireless or wired nework.

Give **one** advantage and **one** disadvantage of a wireless network as compared to a wired network.

Advantage……..……

.....……..……...

.....……..……...

Disavantage……..…….

.....……..……...

.....……..... [4]

5 The use of technology has impact our lives in many areas.
Describe **two** advantages and **two** disadvantages of the impact of technology on healthcare.

Advantage 1 ……..……....

.....……..……..…

.....……..……..…

Advantage 2 ……..……....

.....……..……..…

.....……..……..…

Disavantage 1 ……..…….

.....……..……..…
.
.....……..……..…

Disavantage 2 ……..…….

.....……..……..…

.....……..……. [4]

6 It is an increasing trend in online transactions such as i-banking and e-shopping. This has led to an increase in pharming.

(a) Describe what pharming is and how it works.

....

.... [2]

(b) One way to avoid being pharmed is to ensure that public key encryption is used when submitting credit card or other sensitive information via the Internet. Explain how public key encryption works.

....

.... [2]

(c) Suggest another way to avoid being pharmed.

....

.... [2]

7 Name **two** types of external storage that are commonly found in a computer system, list their corresponding example **and** describe each of them in terms of their advantage and disadvantage.

Type 1...

Example ....

Description..

....

Type 2...

Example ....

Description..

.... [6]

8 Study the Boolean statement:

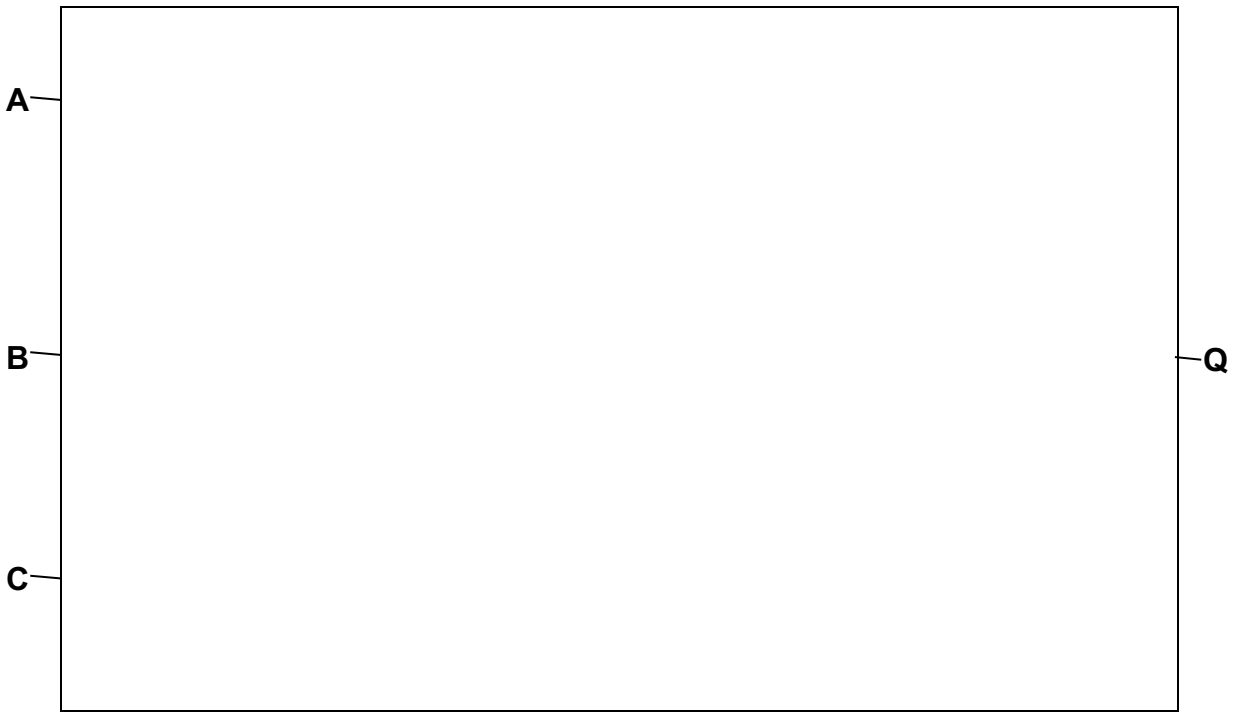
Q = 1 if (**A** = 1 AND **B** = 1) OR ((**B** = NOT 1) AND **C** = 1)

(a) Complete the truth table for the Boolean statement above.

A	B	C	Working space	Q
0	0	0		
0	0	1		
0	1	0		
0	1	1		
1	0	0		
1	0	1		
1	1	0		
1	1	1		

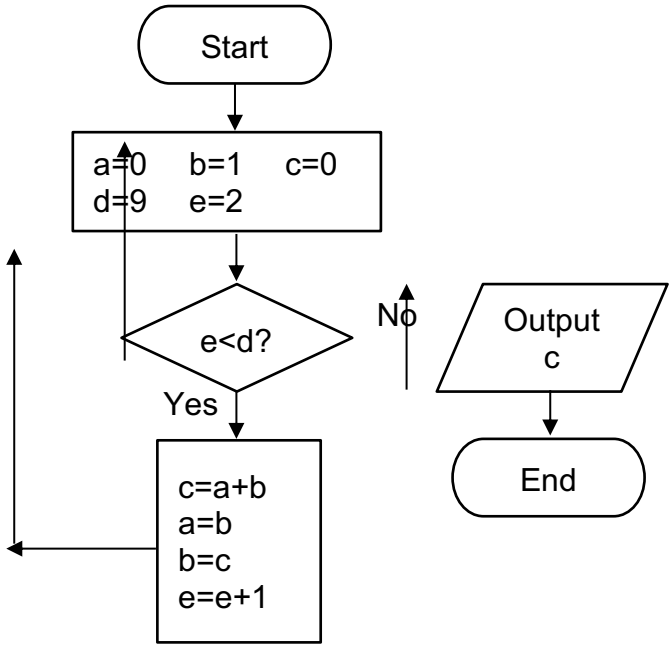
[2]

(b) Draw a logic circuit for the Boolean statement above.



[4]

9 Study the flowchart below.



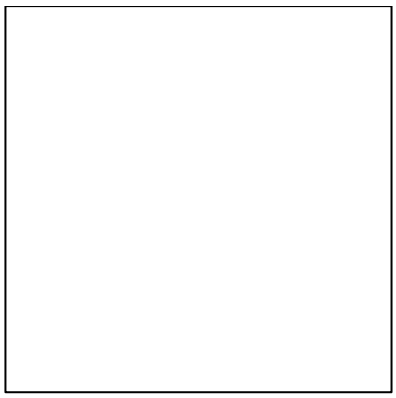
Complete the trace table for the flowchart.

Trace table

a	b	c	d	e	output

[6]

10 The spreadsheet below shows the information of a shopping list.



t

(a) The spreadsheet above contains ……. rows and …….. columns. [1]
.

(b) Write down the range of cells that has been merged.

…… [1]

(c) A formula **=C4*D4** is entered in cell **E4** to calculate the total price for five toothbrush. The formula is copied to complete column E.

Write down the formula in cell **E6**.

…… [1]

(d) Write down the formula in cell **E11** to calculate the Grand Total.

…… [1]

(e) When the value in cell **D5** is changed, list the cell(s) that will change as a result of this.

…… [1]

(f) Customers who spent a grand total of $80 and above can qualify for a lucky draw. Write down a function in cell **B11** to display **Yes** if the customer is qualified, display **No** if he is no.

…… [1]

11 The program below will take in three positive integer values. They are the length of the three sides of a triangle. The program will output whether the triangle is a right-angled triangle.

```
 1  side = int(input("Enter the length for side 1:"))
 2  side2 = int(input("Enter the length for side 2:"))
 3  side3 = int(input("Enter the length for side 3:"))
 4  side1sq = side1*side1
 5  side2sq = side2*side2
 6  side3sq = side3Xside3
 7  if side1sq+side2sq==side3sq:
 8      valid = 1
 9  elif side1sq+side3sq==side2sq:
10      valid = 1
11  elif side2sq+side3sq==side1sq:
12      valid = 1
13  else:
14      valid=1
15  if valid = 1:
16      print("This is a right-angled triangle")
17  else:
18      print("This is NOT a right-angled triangle")
```

There are four errors in this Python code. Locate the errors and state the correct code.

Error 1: .....

Correction: .....

Error 2: .....

Correction: .....

Error 3: .....

Correction: .....

Error 4: .....

Correction: .....

[8]

12 **(a)** Convert the binary number **111001** into denary number. Show your working.

……

……

…… [2]

(b) Convert the denary number **108** into hexadecimal number. Show your working.

……

……

…… [2]

(c) Convert the hexadecimal number **13A** into a 10-digit binary number. Show your working.

……

……

…… [2]

(d) A computer requires IP and MAC address for online shopping. State what MAC represent and how is it represented in number systems?

……

……

…….. [2]

13 A teacher wants to calculate L1R5 aggregate scores for her students according to their names. There are 30 students in her class.

(a) State the inputs, the outputs and the processes required to calculate the L1R5 aggregate scores.

Input(s): ……

……

Output(s): ……

……

Processes: ……

……

……

……

…… [5]

(b) When the problem is complex, we can solve the problem by decomposing it into smaller and manageable parts. Name **one** of the common approaches to decompose a problem.

…… [1]

(c) Name **and** describe **one** validation check that could be added to validate the input.

……

……

…… [2]

(d) Identify **one** test case condition that could be used to test the algorithm mentioned above. Give an example of test data for this algorithm.

……

……

…… [2]

14 Write an algorithm, using only pseudo-code or a program flowchart, that:

- Inputs twenty numbers and stores these numbers in a list
- Output the list index of any number divisible by 5
- Output how many numbers were divisible by 5

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…… [6]

End of Paper