



BOON LAY SECONDARY SCHOOL
PRELIMINARY EXAMINATION
2018

Name	()
Class	

Subject	: COMPUTING
Paper No	: 1
Subject Code	: 7155/01
Level	: SECONDARY FOUR EXPRESS
Date/Day	: 18 SEPTEMBER 2018 (TUESDAY)
Time	: 0800 – 1000
Duration	: 2 HOURS

Candidates answer on the Question Paper.
No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Before you start your exam, check that you have received the correct paper and the number of printed pages are correct.

Write your name, index number and class in the spaces at the top of this page.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams or graphs.

Do not use staples, paper clips, 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 question.

You should show all your working.

The total number of marks for this paper is 80.

This document consists of **12** printed pages.

- 1** A computer system stores and retrieves data from a few types of memory. Name **three** types of memory that are commonly found in a computer system and describe each of them in terms of their speed, size, and/or location.

Type 1.....

Description.....

.....

Type 2.....

Description.....

.....

Type 3.....

Description.....

.....[6]

- 2 (a)** A network is to be setup to allow internet access in the school canteen. Mr Tan is considering between setting up a wired, or a wireless network.

Describe **two** differences between wired and wireless networks.

Difference 1.....

.....

.....

Difference 2.....

.....

.....[2]

- (b)** What advantage and disadvantage does wireless networks have compared to wired networks for the case in part(a)?

Advantage.....

.....

.....

Disadvantage.....

.....

[Turn over

.....[2]

- 3 The spreadsheet data below shows the contributions of students for a class party.

	A	B	C
1	Contribution per attendee:		\$12.00
2			
3	Name	Additional family members	Amount
4	Aisha	1	\$24.00
5	Alex	2	\$36.00
6	Bala	3	\$48.00
7	Denise	1	\$24.00
8	Farhan	4	\$60.00
9	Gopi	5	\$72.00
10	Irfan	1	\$24.00
11	Jun Ming	4	\$60.00
12	Lily	3	\$48.00
13	Mei Ling	5	\$72.00
14	Muthu	4	\$60.00
15	Nurul	5	\$72.00
16	Priya	5	\$72.00
17	Siti	3	\$48.00

- (a) Write down a formula that will count the number of students who are bringing more than 2 family members.

=[2]

- (b) Write down a formula that has been entered in cell C4 and has been used to complete the calculation for column **Amount**. Note that the student will have to contribute as well.

=[2]

- (c) Name the data type for column **Name** and column **Amount**.

Data type for **Name**

Data type for **Amount**[2]

[Turn over

- 4 (a) Write down the largest possible value for a one-byte binary number. Convert it to a denary number. Show your working.

.....

[2]

- (b) Convert the hexadecimal number **B3** into a binary number. Show your working.

.....

[2]

- (c) Convert the denary number **26** into a binary number. Show your working.

.....

[2]

- 5 Unauthorised access occurs whenever data owned by someone is used by someone else, such as an intruder, or an unknowing individual, without permission.

- (a) State **two** reasons why unauthorised access occurs.

Reason 1.....

 Reason 2.....
[2]

- (b) Describe **two** safety measures to prevent unauthorised access.

Safety measure 1.....

 Safety measure 2.....

.....[2]

- 6** Across the world, the music, television and film industries have been hit hard by acts of piracy.

- (a)** Describe **two** economic effects on the music and film industries if piracy is not curbed.

1.....

.....

2.....

.....[2]

- (b)** Siti enjoys watching a television series that is only available on an online video site. After some research, she realises that she can download the television series onto her computer hard drive so that she can watch the videos without going online. Explain why her act is considered copyright infringement.

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.....[1]

- (c)** Describe a situation where music can be downloaded legally without copyright infringement.

.....

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.....[1]

- 7 (a)** Describe what is meant by data validation in programming.

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.....[2]

- (b)** Name **two** common checks that are performed in data validation.

1.....

2.....[2]

- 8 Insert **four** of the following words about data flow in the correct place in the text below.

an input device

an output device

processor register

ALU

ROM

control unit

When using input and output devices, the following data flow may occur.

- The data is entered using and converted into a form that the computer can understand. This data may be temporarily stored in a
- Instructions from the running application are interpreted by the These instructions may request the data to be processed by the

[4]

- 9 A shop owner wants to use a computer to find out the bestselling title in 2017. There were 480 books titles for sale in 2017 and the number of copies sold for each book title was different.

State the inputs, the outputs and processes required to find the title of the bestselling book and the number of copies sold for this title.

Inputs.....

.....

Outputs.....

.....

Processes required

.....

.....

.....[6]

[Turn over

- 10** An algorithm is required to retrieve up to 20 numbers stored from an array and add them together. It stops reading the data, and output the total when the total exceeds 100. The input is provided in an array called "Number" and the output is provided through a variable name "Total".

Study the following pseudo-code.

```
Total = 100
Counter = 0
WHILE Counter < 20 DO
    Number[Counter] + Total = Total
    IF Total = 100
        Counter = 20
    Counter = Counter - 1
ENDIF
OUTPUT Counter
```

There are **five** errors in this pseudo-code.
Locate the errors and state the correct pseudo- code.

Error 1

Correction.....

Error 2

Correction.....

Error 3

Correction.....

Error 4

Correction.....

Error 5

Correction.....[10]

[Turn over

11 Identify the logic gates represented by the following truth tables.

(a)

A	X
0	1
1	0

..... [1]

(b)

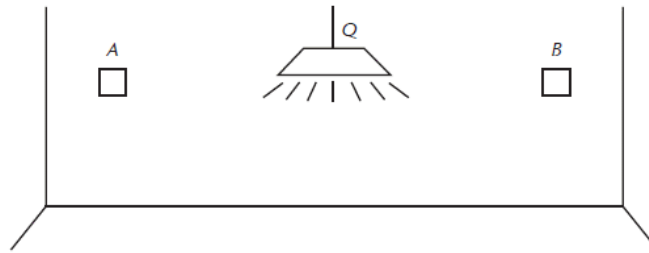
A	B	X
0	0	1
0	1	1
1	0	1
1	1	0

..... [1]

(c) Draw a truth table for an OR gate.

- 11 (d)** Two-way switches allow a single light to be switched on or off from two different locations easily. In the diagram below, light Q at the centre of a long corridor is controlled by switches A and B at both ends of the corridor.

Each switch has two states: 0 for “off” and 1 for “on”. Light Q also has two states: 0 for “off” and 1 for “on”. Light Q will be on only when both switches A and B are off or on concurrently. However, if only one switch is on and the other is off, light Q will be off.



The truth table for the two-way switches is given as below.

A	B	Q
0	0	1
0	1	0
1	0	0
1	1	1

- (i)** Write down the Boolean statement for the two-way switch.

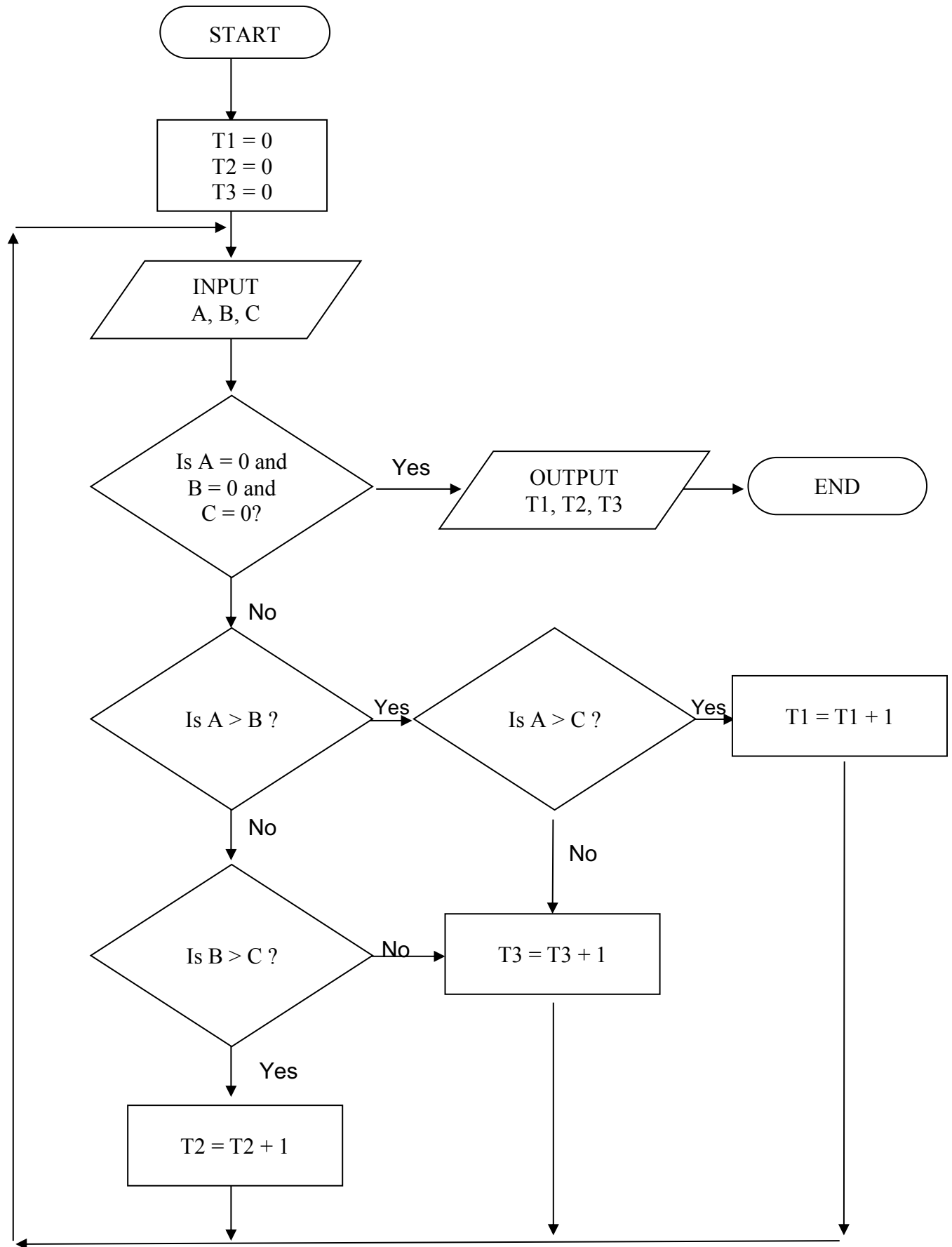
..... [2]

- (ii)** Draw a logic circuit for the two-way switch.

[5]

[Turn over

12 Study the following flowchart.



[Turn over

[Turn over

- (a) Complete the trace table for the following set of data.

6, 4, 2 3, 8, 6 5, 0, 2 6, 7, 9 5, 10, 2 0, 0, 0

Trace table

Note that you need not use all the rows given.

T1	T2	T3	A	B	C	OUTPUT

[6]

- (b) What is the purpose of the algorithm?

.....
.....

.....
..... [1]

- (c) What is the limitation of the algorithm?

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.....

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[Turn over

- inputs twenty different numbers between 10 to 999 and stores these number in an array
- outputs how many numbers of 2 digits and 3 digits value are there
- outputs the sum of all the numbers input

[illegible]

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END OF PAPER

[7]

[Turn over