

Find notes on **Computer Logic** here:

<http://emmanuelattardcassar.me/SEC%20Computer%20Logic.pdf>

1) Write the truth tables of the logical operators AND, OR, NOT, NAND, NOR and XOR.

2) Remember that:

- $P.R$ represents P AND R
- $P+R$ represents P OR R
- P' represents NOT P

If $P=1$, $Q=0$ and $R=1$ evaluate the following expressions:

- $P + Q.R'$
- $P.(Q' + R)$
- $(P.Q)' + R$

3) Draw the logic circuit of the following Boolean expressions:

- $A' + B.C$
- $(A.C + B').A$
- $(A.C' + B)' + C$

4) Draw the truth table of the Boolean expressions (a) and (c) of the previous question.

5) Prove the following identity by showing that the truth table of the left-hand expression is identical to the truth table of the right-hand expression.

$$P.(Q + R') + PR = 1$$

6) Look at the truth table below and fill in the expressions marked by a question mark.

L	M	N	?	?	?
0	0	0	0	0	1
0	0	1	0	1	0
0	1	0	0	1	1
0	1	1	0	1	0
1	0	0	0	0	1
1	0	1	0	1	0
1	1	0	1	1	1
1	1	1	1	1	0

Find notes about **number representation** here:

<http://emmanuelattardcassar.me/Lesson%20Denary%20and%20Binary.pdf>

<http://emmanuelattardcassar.me/Lesson%20Addition%20and%20Subtraction%20in%20Binary.pdf>

<http://emmanuelattardcassar.me/Lesson%20Hex.pdf>

7) Perform the following addition and subtraction in binary

a) $10011001 + 111011$

b) $10111001 - 100011$

8) Fill in the conversions:

Denary	Binary	Hexadecimal
73		
	1100110	
		4D

You find notes about **computer basics** here:

<http://emmanuelattardcassar.me/Basic%20Computing%20Concepts.pdf>

9) What is the difference between?

a) Data and information

b) System software and applications software

10) What is an operating system?

11) Describe what we mean by the following terminals:

a) Dumb terminal

b) Intelligent terminal

c) EPOS terminal

d) EFTPOS terminal

12) What do we mean by a client-server network?

13) Apart from a print server mention three other kinds of servers

For notes in **Java** find the programs we did in class.

14) From Java give examples of the following:

a) Type

b) Assignment statement

c) Why do we use the Keyboard class?

- 15) Write a program that, given as input x_1 and x_2 (both of type 'int'), it calculates the expression $2x^2 - 7x - 15$ for the range x_1 to x_2 in steps of 1.
- 16) A program receives the temperature at two different places in a hall. The average temperature is found. If it is greater than 26 degrees, then an air conditioner is switched on. After receiving the temperatures, the program displays either "SWITCH ON THE AIRCONDITIONER" OR "DO NOT SWITCH ON THE AIR CONDITIONER".
- 17) A job advert asks for the applicant to have 2 years' experience. Write a program that, after receiving the number of years of the applicant outputs one of the following messages:
- "Good for the job" (if the applicant has 2 years' experience or more).
 - "On the waiting list" (if the applicant has 1 year of experience).
 - "Not good for the job" (if the applicant has no experience).
- 18) Write the program shown in the following pseudocode:

```
{
    for (i=1 to 6 step 1)
    {
        display ( **** );
        if i=3 display ( ***** );
    }
}
```

- 19) Draw the flowchart of the pseudocode of the previous question.
- 20) Write a program that asks you to enter two numbers x and y . The program calculates x^y . If this value is between 2000 and 3000 the program will display "ok" or else it will display "not ok".

Find notes about **Application Software** and **Architecture** here:

<http://emmanuelattardcassar.me/yr%209%20sw%20features%20and%20archit.pdf>

21) In the following table, pair the software type with its description:

Word processor	(a) Helps the user view information held on the world wide web
Spreadsheet	(b) A program used to design books.

Database	(c) A program used to perform calculations e.g. finding an average. One can also draw charts.
Web browser	(d) A program used to prepare text e.g. a story, a letter etc.
Presentation software	(e) A program used to project slides on a screen during a talk or a lesson.
Desktop publisher	(f) A program used to hold information in the form of records.

22) Describe briefly what is the role of the following components of a computer:

- a) CPU
- b) RAM
- c) Secondary storage
- d) Cache
- e) ROM

23) Look at the following secondary storage mediums.

Pen drive
Hard disk
SSD
CD
DVD
Floppy disk
Tape

- a) Mention one which is sequential and one which is direct.
- b) State one that uses electronic technology, one that uses magnetic technology and another that uses optical technology.
- c) Write down one medium that is practically not used any more.
- d) When comparing an SSD and a hard-disk state one advantage of each.

24) Give a brief description of the following:

- a) System bus

- b) Data bus
 - c) Address bus
 - d) Control bus
- 25) The width of a particular address bus is 16 bits. How many addresses does the RAM have?
- 26) This question is about the CPU.
- a) Write a short pseudocode program to describe the working of the fetch-decode-execute-cycle.
 - b) Describe briefly the role of the following:
 - i) ALU
 - ii) CU
- 27) Explain briefly the following terms:
- a) Bootstrap loader
 - b) Hz
 - c) Byte
- 28) .
- a) What is a register?
 - b) Name and describe three registers.

Find notes about **Storage** here:

<http://emmanuelattardcassar.me/Bitsize%20notes%20Storage.pdf>

- 29) State two magnetic, two optical and two solid-state storage devices.
- 30) How does a hard-disk store data?
- 31) 6) Write down the capacity of the following optical storage devices:
- a) CD
 - b) DVD
 - c) Blu-ray disc
- 32) Name one advantage of cloud storage.

Find notes about **Input Devices** here:

<http://emmanuelattardcassar.me/Lesson%20Input%20Devices.pdf>

- 33) What is an ergonomic keyboard?
- 34) Give one advantage and one disadvantage of trackballs.
- 35) 14. What is CAD/CAM system?
- 36) Explain the following terms:
 - a. Bit map
 - b. OCR
 - c. ASCII
 - d. Resolution
 - e. dpi
- 37) Give one advantage and one disadvantage of MICR.
- 38) 24. Mention one application for each of following input techniques:
 - a. OMR
 - b. OCR
 - c. Barcode
 - d. MICR
 - e. Magnetic stripe card

Find notes about **Output Devices** here:

<http://emmanuelattardcassar.me/Lesson%20Output%20Devices.pdf>

- 39) Name three features that you would look at when buying a printer.
- 40) Name five output devices (besides the printer) and write a sentence on each.

Find notes on **Spreadsheets** here:

<http://emmanuelattardcassar.me/Lesson%20Spreadsheet%20Terms%20and%20a%20Sales%20Problem.pdf>

Sales Problem

	A	B	C	D	E	F	G	H	I
1									
2			JOE	ANN	PAUL				
3		JANUARY	103	93	88	284	TOTAL	JANUARY	
4		FEBRUARY	129	196	86	411	TOTAL	FEBRUARY	
5		MARCH	144	188	100	432	TOTAL	MARCH	
6		APRIL	233	120	130	483	TOTAL	APRIL	
7		MAY	192	133	127	452	TOTAL	MAY	
8		JUNE	127	124	95	346	TOTAL	JUNE	
9			928	854	626				
10			TOTAL	TOTAL	TOTAL				
11			JOE	ANN	PAUL				
12									

- 41) Refer to the above diagram.
- What is written in cells F3 and D9?
 - How can a user write the six months quickly i.e. without having to write them one by one?

Find notes on **Databases Basic Terms** here:

<http://emmanuelattardcassar.me/Lesson%20Databases%201%20Basic%20Terms.pdf>

- 42) .
- What is a file?
 - Name three different kinds of files.
- 43) Look at the table below and answer the questions.

Books				
ISBN	Name of author	Name of book	No. Pages	Publisher
274980	J. Micallef	Poems from the sea	78	PageOnPage
234441	J. Micallef	Valletta	266	BooksOfPlaces
463388	R. Borg	Down the Hill	122	PageOnPage
645333	L. Zammit	Islands	178	TalkWithWords

- What is the name of the table?

- b) Name one field.
- c) Indicate one record.
- d) Write down one item.
- e) Which is the key-field?