

# JUNIOR LYCEUM ANNUAL EXAMINATIONS 2005

Educational Assessment Unit – Education Division

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**FORM 5 (Option)**

**COMPUTER STUDIES**

**TIME: 1 hr 45 min**

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**Name:** \_\_\_\_\_

**Class:** \_\_\_\_\_

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***Directions to Candidates:***

*Answer ALL questions in Section A on this paper.*

*Answer any TWO questions from Section B on separate foolscaps.*

*The use of flow chart template is permitted.*

*Calculators are NOT allowed.*

*Good English and orderly presentation are important.*

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*For office use only:*

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Paper Total	Course Work	Final Mark
Max	5	5	5	5	5	5	5	5	5	5	5	15	15	15	85%	15%	100%
Mark																	

## Section A - Answer all Questions

- 1 (a) Three important units found in computers are the **RAM** (Random Access Memory), **ALU** (Arithmetic Logic Unit) and the **CU** (Control Unit). Describe one function of each unit:

**RAM:** \_\_\_\_\_

\_\_\_\_\_

**ALU:** \_\_\_\_\_

\_\_\_\_\_

**CU:** \_\_\_\_\_

\_\_\_\_\_

- (b) Give a main difference between **RAM** (Random Access Memory) and **ROM** (Read only Memory). [3]

**RAM:** \_\_\_\_\_

\_\_\_\_\_

**ROM:** \_\_\_\_\_

\_\_\_\_\_

- 2 (a) When buying a computer one of the specifications John found in a leaflet was: *Fax/Modem 56 Kbps*. Explain the terms in italics: [2]

**Modem:** \_\_\_\_\_

\_\_\_\_\_

**Kbps:** \_\_\_\_\_

\_\_\_\_\_

- (b) Explain why a modem is necessary at both ends of the communication line to use the Internet. [3]

\_\_\_\_\_

\_\_\_\_\_

- 3 (a) A particular *raster* printer has the following specifications: 15 *ppm* Black & White - 10 *ppm* Colour – 1200 dpi X 1200 dpi Black *resolution*. Explain what the words in italics mean: [2]

**Raster:** \_\_\_\_\_

ppm: \_\_\_\_\_

resolution: \_\_\_\_\_

\_\_\_\_\_

[3]

- (b) List two differences between an inkjet and a laser printer.

1<sup>st</sup> difference: \_\_\_\_\_

2<sup>nd</sup> difference: \_\_\_\_\_

\_\_\_\_\_

[2]

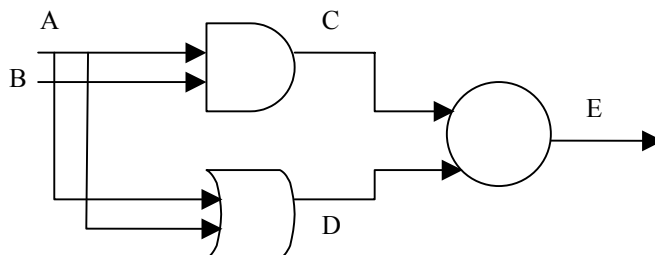
- 4 Match the list of computer jobs given below with the following list of personnel.  
You may use a personnel more than once.

**Programmer, I.T. Manager, System Analyst, Operator, Web Master.**

- (a) Reports hardware faults: \_\_\_\_\_
- (b) Maintains a website: \_\_\_\_\_
- (c) Selects and allocates tasks to IT staff: \_\_\_\_\_
- (d) Sets budgets and deadlines: \_\_\_\_\_
- (e) Writes the source code: \_\_\_\_\_
- (f) Defines the objectives of a system: \_\_\_\_\_
- (g) Starts up equipment: \_\_\_\_\_
- (h) Discusses program specification with analyst: \_\_\_\_\_
- (i) Tests and debugs a program: \_\_\_\_\_
- (j) Carries out feasibility study: \_\_\_\_\_

[5]

- 5 Here are a partly drawn logic circuit and its incomplete truth table.



A	B	C	D	E
0	0	0	0	0
0	1	0	1	0
1	0			
1	1	1	1	

- (a) By studying the circuit and the truth table fill in the missing gate represented by the circle by either AND, OR or NOT. [1]
- (b) Complete the truth table to match the logic circuit. [2]
- (c) Evaluate the boolean expression (in terms of E, A and B) for the circuit above.

Answer:  $E =$  \_\_\_\_\_ [2]

- 6 (a) Secondary storages can either be serial (sequential) access or direct (random) access. Distinguish between the two and give an example of a storage device for each type of access.

**Serial access:** \_\_\_\_\_

\_\_\_\_\_

**Example:** \_\_\_\_\_

\_\_\_\_\_

**Direct access:** \_\_\_\_\_

\_\_\_\_\_

**Example:** \_\_\_\_\_

- (b) Briefly explain one main difference between main and secondary storage. [4]

\_\_\_\_\_

\_\_\_\_\_ [1]

- 7 Complete the table below to obtain a conversion of each number in binary, hexadecimal and decimal.

Binary	=	Hexadecimal	=	Decimal
1   0   1   0   1   0   0   1	=		=	
	=	BC	=	
	=		=	210

*Working Space:*

- 8 (a) Compilers, Interpreters and Assemblers are three types of translators. Briefly explain the difference between them. [5]

**Compilers:** \_\_\_\_\_

\_\_\_\_\_

**Interpreters:** \_\_\_\_\_

\_\_\_\_\_

**Assemblers:** \_\_\_\_\_

\_\_\_\_\_

- (b) Distinguish between source code and object code. [3]

**Source code:** \_\_\_\_\_

\_\_\_\_\_

**Object code:** \_\_\_\_\_

\_\_\_\_\_

[2]

9 Electronic mail is now a tool used by many Internet users. List 3 advantages and 2 disadvantages one might encounter when using e-mail.

1<sup>st</sup> Advantage: \_\_\_\_\_

\_\_\_\_\_

2<sup>nd</sup> Advantage: \_\_\_\_\_

\_\_\_\_\_

3<sup>rd</sup> Advantage: \_\_\_\_\_

\_\_\_\_\_

1<sup>st</sup> Disadvantage: \_\_\_\_\_

\_\_\_\_\_

2<sup>nd</sup> Disadvantage: \_\_\_\_\_

\_\_\_\_\_

[5]

10 The following is a simple bill that was typed in a spreadsheet program. Fill cells B4, B5, B6, B7 and B8 with appropriate formulas.

	A	B	C
1	Tiles:	Lm180.00	
2	Bathroom accessories:	Lm250.00	
3	Mirror:	Lm 50.00	
4	<b>Total:</b>		
5	<b>5% discount:</b>		
6	<b>Total less Discount:</b>		
7	<b>Add VAT at 18%:</b>		
8	<b>Sub-Total</b>		

[5]

- 11 (a) The area of a trapezium is found by the formula  $Ar = \frac{1}{2}(a + b)d$ , where  $Ar$  represents the area of the trapezium,  $a$  and  $b$  the two parallel sides, and  $d$  the perpendicular distance between them. Write a short program in Pascal, which asks the user to input the two parallel sides and the distance, and the area is given as the output.

- (b) Before a program is written its design has to be prepared. Mention one type of design you are familiar with.

[4]

Answer: \_\_\_\_\_

[1]

**Section B – Answer any TWO questions**

- 12 The main stages in system development are:

- i. Project Selection [2]
- ii. Feasibility Study [2]
- iii. Studying the present system and analysis [2]
- iv. Design of new computerized system [2]
- v. Programming and Documentation [2]
- vi. Implementation and changeover methods [2]
- vii. Control and Review [2]
- viii. System Maintenance [1]

By taking a case study, describe briefly each of the eight steps above.

- 13 At the beginning of the scholastic year, the Head of school asked you to prepare and publish a newsletter about the events which occurred in your school during the previous scholastic year. You have access to the computer lab to prepare the newsletter.
- (a) What kind of software would you use to prepare the newsletter? [1]
- (b) Give 4 main differences you would find in using a Word Processing software and the software mentioned in part (a) above. [4]
- (c) What kind of printer would you use to print the newsletter? Justify your answer by giving differences with other types of printers. [3]
- (d) Since you are not going to finish the newsletter in one day you are asked to take backups of your work. Why is it better to backup on a CD-ROM rather than a floppy disk? [3]
- (e) Why would a Scanner and a Digital Camera be useful to prepare the newsletter? [2]
- (f) Some of the material in the newsletter is to be published in the school's website. What precautions must be taken especially when you are going to publish students' photos in the site? [2]

- 14 A quadratic equation may be written in the form of:  $ax^2 + bx + c = 0$ , where  $a$ ,  $b$  and  $c$  are numbers e.g.  $2x^2 - 7x + 3 = 0$ . To solve such an equation you may use the formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Write a program in Pascal which asks the user to enter the three numbers  $a$ ,  $b$  and  $c$ .

The program then calculates the value of  $(b^2 - 4ac)$  and

- If it is less than zero it outputs a message "No real answer" and stops.
- If it is equal to zero the program outputs a single answer for  $x$  to 2 decimal places and stops.
- If it is greater than zero it displays both answers for  $x$  to 2 decimal places and stops.

Use in-line documentation (comments) where you think it is necessary to explain your source code. [15]