



**FORM 3 COMPUTER STUDIES**  
**CAT 1 TERM 2 2016**  
**TIME: 2 HOURS**

<i>Date done</i>	
<i>Invigilator</i>	
<i>Date returned</i>	
<i>Date revised</i>	

**Instructions**

- Write your name and admission number in the spaces provided above.
- Answer all questions in the spaces provided.

1. With the aid of a diagram explain the difference between a digital signal and analog signal. (4mks)

2. Explain the role of a modem in communication. (2mks)

3. State two reasons for using binary digital technology. (2mks)

4. Perform the following computer arithmetic. In each case, show how you arrive at your answer.

Convert the following decimal numbers to their binary equivalent.

(i)  $45_{10}$  (2mks)

(ii)  $4.75_{10}$  (2mks)

5. (a) Use binary addition to solve the following: (2mks)

$$4_{10} + 3_{10}$$

(b) Convert  $1010000001111111_2$  to its hexadecimal equivalent. (2mks)

(c) Convert  $767_8$  to hexadecimal equivalent. (2mks)

6. (a) Perform the following binary arithmetic.

(i)  $11100111 + 00101110$  (1mk)

(ii)  $10101_2 - 11_2$  (1mk)

(b) Use two's complement to subtract 101 from 1000. (3mks)

7. With an aid of a diagram, explain the stages of data processing cycle. (6mks)

8. Clearly differentiate between data collection and data capture. (2mks)

9. (a) Explain the relevance of the term garbage in garage out (GIGO) in reference to errors in data processing. (1mk)

(b) Explain two transcriptions and two computational errors committed during data processing. (8mks)

10. (a) Define the term data integrity. (2mks)

(b) State three ways of minimizing threats of data integrity. (3mks)

11. (a) Briefly explain real-time processing. (2mks)

(b) Give three advantages and two disadvantages of real time system. (5mks)

12. In a computer based information system, state the purpose of the following files and give one example where such a file may be required in a school. (8mks)

(i) Report file

(ii) Back-up file

(iii) Reference file

(iv) Sort file

13. (a) What is file organization? (2mks)

(b) Differentiate between the following file organization methods. (4mks)

(i) Sequential and series

(ii) Random and indexed-sequential

14. Define the following terms:- (3mks)

(i) Computer program

(ii) Programming

(iii) Programming language

15. Explain the meaning of the following as used in computing programming. (2mks)

(i) Syntax

(ii) Sematic

16. (a) What are low level languages? Give their features. (4mks)

(b) Give three advantages of high level language as opposed to low level language. (3mks)

17. (a) Examine four features of fourth generation language (4GLS). (4mks)

(b) List three examples of fourth generation programming languages. (3mks)

18. Differentiate between the following terms as used in programming. (4mks)

(i) Source program and object code

(ii) Flowchart and pseudo code

19. Explain the following types of computer program errors. (3mks)

(i) Syntax error

(ii) Logical errors

(iii) Run time (executive error)

Name ..... Adm No..... Class... No..... Sign .....

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20. (a) Explain two error detection methods in program development. (2mks)

(b) Describe three types of program documentation in reference to programming. (6mks)

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