

RÉPUBLIQUE DU CAMEROUN

Pais-Travail-Patrie

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MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR

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COMMISSION NATIONALE D'ORGANISATION DE L'EXAMEN

HIGHER NATIONAL DIPLOMA EXAM (HND)

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REPUBLIC OF CAMEROON

Peace-Work-Fatherland

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MINISTRY OF HIGHER EDUCATION

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NATIONAL COMMISSION FOR THE ORGANISATION OF

HIGHER NATIONAL DIPLOMA EXAM (HND) EXAM

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National Exam of Higher National Diploma 2023 Session

Specialty/Option: SOFTWARE ENGINEERING (SWE)

Paper: DIGITAL ELECTRONICS

Duration: 4 HOURS

credit: 7

Instructions: Answer all question. Calculators of any sort are not allowed

SECTION A: NUMBER SYSTEMS AND CODES (20 marks)

MCQs, for each question, four answers are proposed. Write the letter for the correct answer against the question number. Each question carries 1 mark.

1) The value of radix in binary number system is

- a) 2
- b) 8
- c) 10
- d) 1

2) Which of the following is not a binary number?

- a) 1111
- b) 101
- c). 11E
- d).000

3) Positive integers must be represented by

- a) signed numbers
- b) unsigned number
- c) Both A and B
- d) None of above

4) An unweight code in which only one bit changes from one code number to the next is:

- a) BCD
- b) Excess-3
- c) Gray
- d) ASCII

5) In the decimal numbering system, what is the MSD?

- a) The middle digit of a stream of numbers
- b) The rightmost digit to the decimal point of the number
- c) The last digit on the right
- d) The digit with the smallest weight

6 The following BCD number: 0010, 1000.0111 0100 corresponds to the decimal number:

- a) 28.72
- b) 29.52
- c) -28.70
- d) 28.82

7) How many binary digits are required to count to 10010?

- a) 100
- b) 3
- c) 7
- d) 2

8) Which of the following logical operations is represented by the + sign in Boolean algebra?

- a) Inversion
- b) AND
- c) OR
- d) complementation

9) The binary equivalent of gray code 1111 is

- a) (1101)₂
- b) (1011)₂
- c) (1110)₂
- d) (1010)₂

10. The BCD number for decimal 347 is

- a) 110010111000

b) 00110100 0111

c) 00110100 0001

d) 110010110110

11. Convert binary to octal: $(1\ 10110001010)_2 = ?$

a) $(5512)_8$

b) $(6612)_8$

c) $(4532)_8$

d) $(6745)_8$

12. What is the addition of the binary numbers 11011011010 and 010100101?

a) 0111001000

b) 1100110110

11101111111

d) 10011010011

13. Binary subtraction of $100101 - 011110$ is

a) 000111

b) 111000

c) 010101

d) 101010

14. Perform multiplication of the binary numbers: 01001×01011

a) 01100011

b) 110011100

c) 010100110

d) 101010111

15. Divide the binary numbers: $1010001 + 1000$

a) 1010.001

b) 1000.001

c) 1100.001

d) 0011.001

16. Which numbering system uses numbers and letters as symbol?

Decimal

a) Decimal

b) Binary

- c) octal
 - c) Hexadecimal
17. The octal number (651.124)₈ is equivalent to
- a) (1A9.2A)₁₆
 - b) (1B0.10)₁₆
 - c) (1A8.A3)₁₆
 - d) (1B0.B0)₁₆
18. The sign of a negative binary number is given by by its
- a) MSB
 - b) LBS
 - c) Byte
 - d) Nibble
19. Which of the following is a correction detection code?
- a) Gray code
 - b) Hamming code
 - c) UNICODE
 - d) Parity code
20. The format used to present the logic output for the various combinations of a logic expression-is called:
- a) Boolean constant
 - b) Boolean variable
 - c) Truth table
 - d) Logic function

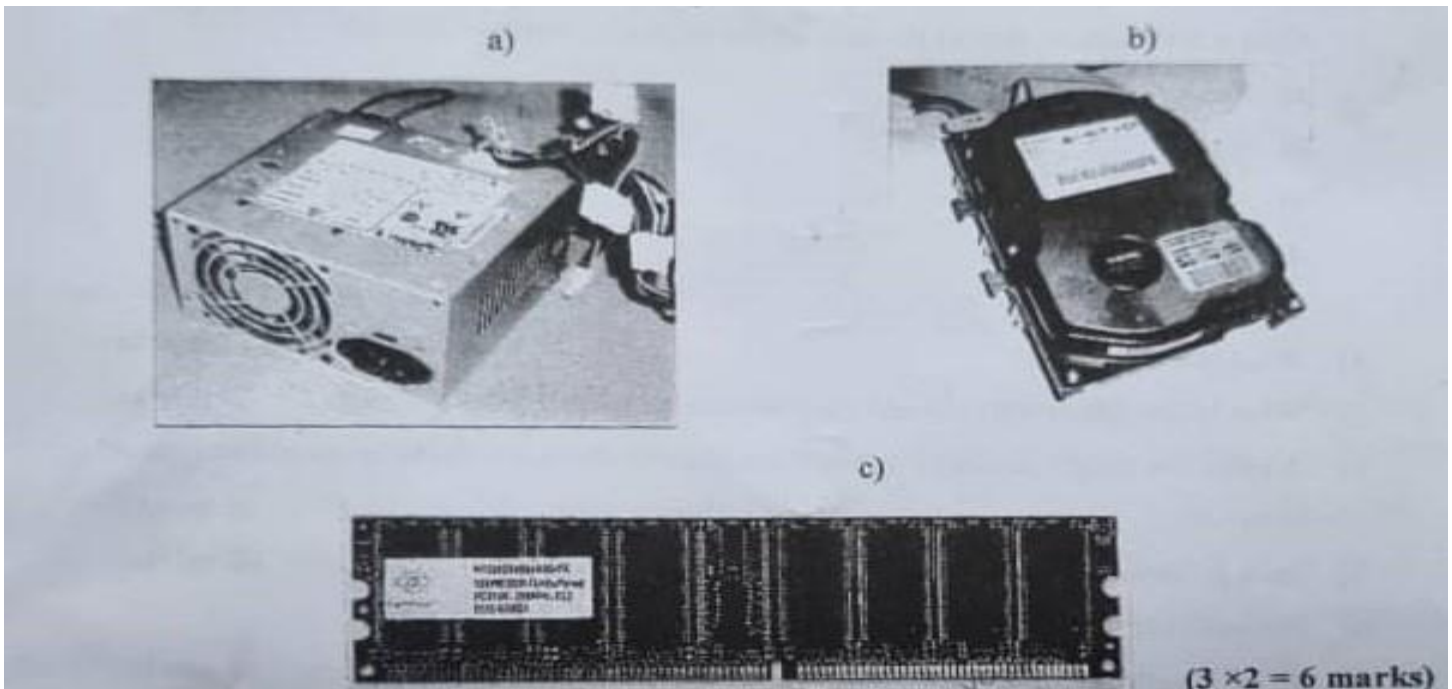
SECTION B: COMPUTER FUNDAMENTAL (80marks)

1) Hardware (20 Marks)

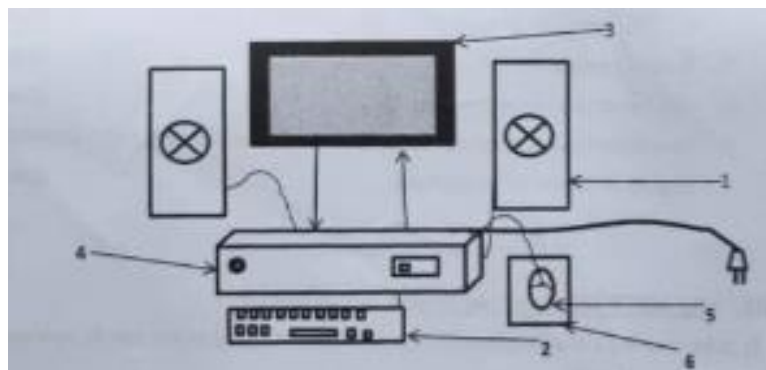
1) Define the following acronyms:

- a) RAM
- b) SDRAM
- c) EEPROM
- d) ROM
- e) DRAM

2) Name the following devices and give their roles



- 3) What is the main difference between mainframes computers and supercomputers (2marks)
- 4) Given the following diagram below



- a) Identify the following components from 1 to 6 (3marks)
- b) Identify two inputs and output devices (4marks)

II) Network And Mobile Devices (40Marks)

- 1) Give brief description of the each of the following network devices
 - a) Router
 - b) Switch

- c) Access point
 - d) Firewall
 - e) Repeater (5x 2 marks)
- 2) What is the Internet? (2 marks)
- 3) What is the difference between Internet and intranet? (2 marks)
- 4) A company might decide to invest in an intranet. What are the benefits of this type of network? (2 marks)
- 5) How is Internet different from intranet? (2 marks)
- 6) Network can be classified using various criteria
- a) Classify networks based on geographical distances. (5 marks)
 - b) Classify networks based on the media of transmission. (3 marks)
 - c) What network type is suitable for a single school campus? (1 mark)
 - d) What transmission media is preferable for the network in (C) above (1 mark)
 - e) Can Optic fiber be used in a campus network? Explain. (2 marks)
- 7) What is a mobile device? (2 marks)
- 8) List 3 examples of a mobile device. (3 marks)
- 9) Mobile devices come equipped with hardware for functionality. List 5 common features a smart phone can have (5 marks)

III) Microsoft Word, Excel And PowerPoint (20 Marks)

- 1) After creating a new word document a user can start typing in text into the new work space
- a) What is the default tab for a new document (1 mark)
 - b) What file extension does a word document save in (1 mark)
 - c) Which tab is used to add illustration to a word document (1 mark)
 - d) What is the role of the format painter in a Word document? (1 mark)