



PAN AFRICA CHRISTIAN UNIVERSITY

(DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY)

END OF TERM EXAMINATION

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY

COURSE CODE: DICT 0122

CAMPUS: ROYSAMBU

COURSE TITLE: COMPUTER ELECTRONICS

EXAM DATE: XXXX, (XX JULY 2022)

TIME: START HOUR – END XX:XX-XX :XX HRS

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other THREE questions in Section **B**.
- None programmable calculators permitted
- Calculators on phones, tablets and computers are NOT permitted in Theory Papers

SECTION A
(Answer ALL questions in this section)

SECTION A (10 Marks)

Question 1:

- a) With the aid of a sketch, outline a closed circuit of two resistors in series (R_1 , R_2 and R_3) and a voltage supply V (3 Marks)
- b) Identify three commonly used display devices in digital electronics (3 Marks)
- c) Determine the octal equivalent for each of the following number systems
 - i. $EA7_{16}$ (2 Marks)
 - ii. $1101\ 1011_2$ (2 Marks)

SECTION B

(Answer any THREE (3) questions in this section)

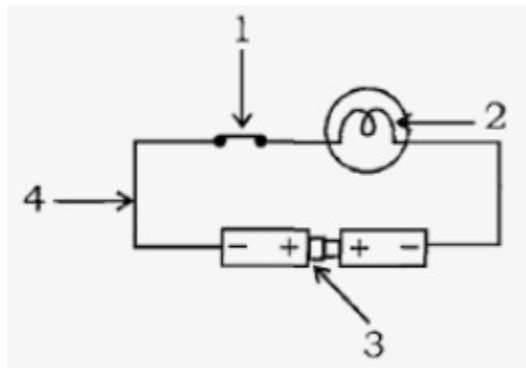
Question 2:

- a) Discuss two RAM classifications of computer memory (4 Marks)
- b) Table I represent a truth table for logic gate. Draw the logic gate and label it appropriately (6 Marks)

S1	S2	S3	L
0	0	0	0
0	0	1	1
0	1	0	1
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

Question 3:

- a) Differentiate between volatile and non-volatile computer memories. (4 Marks)
- b) Determine the excess-3 equivalent of the values below
- i. $1001\ 0110\ 1000\ 0000_{\text{BCD}}$ (2 Marks)
- ii. 25_{10} (2 Marks)
- c) Figure below shows an electric circuit. Identify the symbols labelled 1, 2, 3 and 4. (2 Marks)



Question 4:

- a) DVD is one of the secondary memories used popularly to store movies. Explain two reasons for its popularity. (4 Marks)
- b) Explain how the circuit in figure1 satisfies the voltage law (4 Marks)

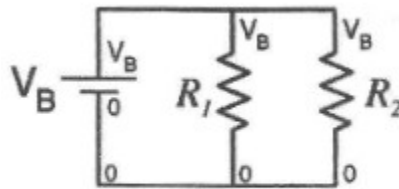


Figure 1

- c) The diagrams below display error detecting and error correcting parity bit representation. Discuss the types of parity bits represented in the diagrams (2 Marks)

1	1	0	1	0	1	0	0
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0	0	0	1	0	1	1	1
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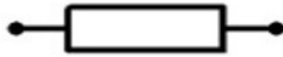
Question 5:

- a) The lift mechanism in a building is controlled by four doors; A, B, C and D. The lift door is open whenever B and D are in the different positions. The lift door is open, on condition that A and C are high. Draw a truth table to represent the information. (6 Marks)

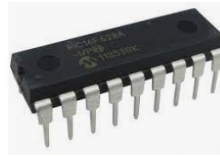
b) Identify the electronic components represented by the below symbols (4 Marks)



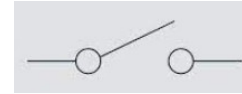
(i)



(ii)



(iii)

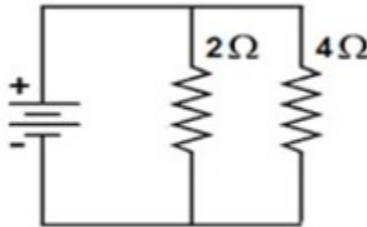


(iv)

Question 6:

a) Julia would like to implement BCD arithmetic on her computer. Explain two disadvantages of this number arithmetic system (4 Marks)

b) Calculate the total resistance in the diagram below (3 Marks)



c) Describe Ohms law as used in digital electronics (3 Marks)

THE END