



NATIONAL OPEN UNIVERSITY OF NIGERIA
University Village, 91 Cadastral Zone, Nnamdi Azikwe Expressway, Jabi, Abuja
FACULTY OF SCIENCES
COMPUTER SCIENCE DEPARTMENT
2020_1 EXAMINATIONS

CIT 344 - INTRODUCTION TO COMPUTER DESIGN

Credit: 3 units

TIME ALLOWED: 2½ Hours

INSTRUCTION: Answer Question 1 and any other FOUR (4) Questions

Question 1

- (a) Relate the following in terms of base number and weight: **382.91, 275, 278.35, 123 and 489**
(5 marks)
- (b) Identify the three steps of designing combinational circuit (3 marks)
- (c) Describe briefly the attributes of combinational circuit (5 marks)
- (d) Based on your understanding of this course, summarize memory organization process (6 marks)
- (e) List the two classes of digital logic circuit (3 marks)

Question 2

- (a) Show in tabular form the binary equivalence of decimal 1 to 12 (6 marks)
- (b) Convert 10011_2 to its decimal equivalent (6 marks)

Question 3

- (a) Identify the ways a combinational logic circuit can be analysed (3 marks)
- (b) With the aid of an illustrative diagram, explain the operation of a Half-adder (6 marks)
- (c) Describe briefly the operation of a half-adder using function table (3 marks)

Question 4

- (a) Evaluate how an ALU will achieve an addition operation on the following numbers 2,3,4 and 5 (6 marks)
- (b) Compare synchronous sequential circuit with asynchronous sequential circuit (3 marks)
- (c) With the aid of a diagram, explain the operation of a sequential circuit (3 marks)

Question 5

- (a) Summarize briefly any two of the following operations: **(3 marks each. Total = 6 marks)**
 - (i) Read and Write signal,
 - (ii) Address signals and
 - (iii) Data signals
- (b) Differentiate between memory read operation and memory write operation using suitable (6 marks)

Question 6

- (a) Differentiate between Binary addition and Binary subtraction (5 marks)
- (b) Explain the process of repeated division by 2 and using the method, convert 392 to Binary. (7 marks)