

Total No. of Questions- 5+5+5]

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CBS – IIs/7(R&P)

225362

COURSE NO. UBCATC-212

B.C.A

(Fundamentals of Digital Electronics)

Time Allowed: 2 ½ Hours

Maximum Marks: 80

Section – A

Note: Attempt all short answer type questions. Answer to each question should be in about 80 words. Each question carries 3 marks.

- Q1. Explain floating point representation in IEEE format. ✓
- Q2. What are universal gates? Implement OR gate with any universal gate. ✓
- Q3. What is a truth table? State differences between K-MAP and truth tables. ✓
- Q4. Explain working of bidirectional register? ✓
- Q5. What is a macro in assembly language? ✓

Section – B

Note: Attempt all medium answer type questions. Answer to each question should be in about 300 words. Each question carries 7 marks.

- Q1. Explain in detail the multiplication and division operation on floating point numbers given
as: 4.734162×10^3 and 5.417242×10^4 .
- Q2. What are logic gates? Draw logical circuit diagrams for XOR, NAND, NOR and XNOR logic gates.
- Q3. State and prove De-Morgan's law in boolean algebra.
- Q4. What is a counter? Explain ripple counter in detail.
- Q5. Explain any three arithmetic instructions with examples in assembly language. ✓

Section – C

Note: Attempt any two long answer type questions. Answer to each question should be in about 600 words. Each question carries 15 marks

Q1. Write the algorithm for Hamming error detection and correction method. Let us assume the even parity hamming code from the above example (111001101) is transmitted and the received code is (110001101). Detect and correct the error from the received code.

Q2. What are the different types of computer codes representations? Explain each type in detail using suitable examples.

Q3. What is the purpose using K-MAP in Boolean algebra? Minimize the following boolean Function using K-MAP: $F(A, B, C, D) = \prod M(0, 1, 2, 5, 7, 8, 9, 10, 13, 15)$

Q4. Discuss in detail the JK flip flop along with its transition table and transition function.

Q5. With the help of suitable assembly program discuss the implementation of branching in assembly language.

