Total Pages : 03 Roll No. : ……

MCA-02/PGDCA-02/M.Sc.IT-02

Digital Logic

Master/P.G.Diploma in Computer Application/ Master of Science in Information Technology/Master of Science (Cyber Security)

1st /3rd Semester Examination June 2022

Time : 2 Hours Max. Marks : 80

Note : This Paper is of Eighty (80) marks divided into two (02) Section A and B. Attempt the questions contained in these sections according to the detailed instructions given there in.

Section-A

(Long Answer-type questions)

Note: Section 'A' contains Five (05) Long-answer type questions of Twenty (20) marks each. Learners are required to answer any two (02) questions only.

(2 x 20 = 40)

P.T.O.

Q.1. Discuss and design 2 bit up/down synchronous counter with suitable diagram ?

Q.2 What is full adder? Draw a full adder using two half adder and gives its truth table.

Q.3 What do you understand by K map? Explain its application using suitable example.

Q.4 What do you understand by SR-flip flop and T flip flop? Explain the difference between Jk-flip flop and D flip flop with their characteristic table.

Q.5 Explain the following keywords:

a. Gray code b. Encoder c. Decoder

Section-B

(Short Answer-type questions)

Note: Section 'B' contains Eight (08) Short-answer type questions of ten (10) marks each. Learners are required to answer any four (04) questions.

(4 x 10 = 40)

Q.1 What is difference between RAM and ROM?

P.T.O.

Q.2 Simplify $F(x,y,z)=\sum m(2,3,4,6,7)$ using K-map.

Q.3 Convert the following numbers from the given base to the base indicated:

a. $(A56)_{16}=(?)_{10}$

b. $(101101)_2=(?)_8$

Q.4 What do you understand by don't care condition ?

Q.5 Write about the different types of logical gates.

Q.6 What are the Boolean laws?

Q.7 If P,Q, R are Boolean variables, then simplifies the following expression :

(P + Q')(PQ' + PR)(P'R' + Q')

Q.8 What do you understand by De-Morgan's Theorem? Explain with example.

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