Name:......Shrayansh Agrawal............   Reg. No.....2016 CA 08.............

Department of Computer Science & Engineering
Motilal Nehru National Institute of Technology, Allahabad
Mid Sem. Examination (ODD-Semester) 2016-17

Class: MCA First Semester 2016-17

M.M. : 20   Subject: Digital Computer Organization(Code:CA3103)   M. Hrs: One & Half

Note: 1.ALL Questions are compulsory.
   2.Attempt ALL questions serially starting from Question No.1.
   3.Write ALL parts of a question together in one attempt NOT here & there.
   4.Write to the point. Make & State necessary assumptions.

Q.No.1 (a) Simplify the following Boolean function using 4-variable maps :
$$F (A,B,C,D) = \sum (0,2,4,5,6,7,8,10,13,15)$$ (02)
   (b) What is "Full Adder" Circuit ? Trace the following for Full Adder Circuit :
      (i) Truth Table   (ii) Logic Diagram   (02)
   (c) Why there is NO need of Read or Write pins in ROM?   (01)

Q.No.2 (a) Trace Block diagram of 8085 Microprocessor.   (02)
   (b) How Status Flags in 8085 Microprocessor are set? Explain.   (01)
   (c) Write purpose of any **20 Pins** of 8085 Microprocessor.   (01)

Q.No.3 Explain the following :
   (a) Register
   (b) Registers with parallel load
   (c) Shift Register
   (d) Binary counter
   (e) Binary Counter with parallel load
   (f) Multiplexer   (03)

Q.No.4 A digital Computer has a Common Bus System for 16 Registers of 32 bits each. The BUS is
   constructed with Multiplexers. Answer the following with JUSTIFICATION: (02)+1
   (a) How many selection inputs are there in each Multiplexer ?
   (b) What size of Multiplexers are needed ?
   (c) How many Multiplexers are there in the BUS?

Q.No.5(a) Explain in brief Construction & Working of Hard disk Drive OR Pen Drive.   (02)
   (b) Write Truth Tables and Excitation Tables for RS, JK, D and T Flip-Flops.   (02)
   (c) Convert $(9AFC)_{16}$ to binary and find it's 2's Complement.   (01)

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