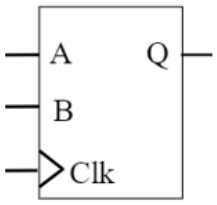
Department of Information & Communication Technology
MIT, Manipal

III Sem B. Tech (IT/CCE),
ICT 2154 Digital Systems / ICT 2171 Digital Systems and Computer Organization
In-sem Examination

Date: 15/12/2021 **Max. Marks: 20**
Write-upTime: 10.30 to 11.50am **Upload time: 11.50am to 12.00pm**

Note to Students: Answer ALL Questions

Q1.	Design the following combinational circuit using single 7485IC, 7483IC and minimum number of half adder blocks. If A>B, F= 2A+3B Else F=3A-2B Where A and B are 2-bit binary numbers.	**3 Marks**
Q2.	Construct a hexadecimal up counter to count from 0 to 41H using only one 7490 IC and one 7493 IC. Draw the logic diagram.	**3 Marks**
Q3.	Design a 2-bit magnitude comparator using 74151 ICs and minimum external gates.	**3 Marks**
Q4.	Function table defines the working of a fictious AB flip flop. Design the AB flip flop using D flip flop and external gates. A B Q(t+1) 0 0 Q' 0 1 0 1 0 1 1 1 Q 	**3 Marks**
Q5.	Design a JK flip flop using a basic NOR latch and gates.	**4 Marks**
Q6.	Design a code converter to convert a decimal digit represented in gray code to a decimal digit represented in self-complementary 4221 code using minimum number of 3 to 8 decoders with active high output and active high enable input, and external gates.	**4 Marks**