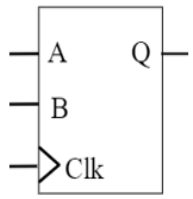
Department of Information & Communication Technology
MIT, Manipal

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-up Time: 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 minimum number of 7483ICs and half adder blocks. If A<B, F= 2A+4B Else F=4A+2B Where A and B are 2-bit binary numbers.	**3 Marks**
Q2.	Construct a mod-42 decimal up counting circuit using only asynchronous ICs. Draw the logic diagram.	**3 Marks**
Q3.	Design a 2-bit x 2-bit binary multiplier 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 0 0 1 1 1 0 Q 1 1 Q' 	**3 Marks**
Q5.	Design a T flip flop using a basic NOR latch and external gates.	**4 Marks**
Q6.	Design a code converter to convert a decimal digit represented in excess-3 code to a decimal digit represented in self-complementary 5 2 1 1 code using minimum number of 3 to 8 decoders with active low output and active high enable input, and external gates.	**4 Marks**