

**Code No: 153AB****JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B.Tech II Year I Semester Examinations, October - 2020****ANALOG AND DIGITAL ELECTRONICS****(Common to CSE, IT)****Time: 2 hours****Max. Marks: 75****Answer any five questions****All questions carry equal marks**

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- 1.a) Define Diffusion capacitance? Also derive the expression for  $C_D$ ?  
b) Draw and explain the V-I characteristics of a tunnel diode? [8+7]
- 2.a) What is LED? Explain the construction of LED in brief?  
b) Explain the working of a full wave rectifier with necessary waveforms? [7+8]
- 3.a) Explain the input and output characteristics of common base configuration.  
b) Explain thermal run away and thermal stability. [8+7]
4. Analyse CE-CE amplifier in terms of gains and Impedances. [15]
- 5.a) Draw and explain the CS amplifier with current source load.  
b) Explain the small signal MOSFET circuit model. [8+7]
- 6.a) Explain ECL gate and write the advantages and disadvantages.  
b) Draw CMOS NOT gate and then explain the same. [8+7]
7. Simplify the following Boolean function using Quine – McClusky method.  
 $F(A, B, C, D) = \sum m (0, 2, 3, 6, 7, 8, 10, 12, 13)$  [15]
- 8.a) What is state assignment? Explain with a suitable example?  
b) Realize D and T flip flops using Jk flip flops. [8+7]

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