

Code No.: IT301ES

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**CMR ENGINEERING COLLEGE: : HYDERABAD**  
**UGC AUTONOMOUS**  
**II-B.TECH-I-Semester End Examinations (Regular) - January- 2022**  
**ANALOG & DIGITAL ELECTRONICS**  
**(Common to IT & CSM)**

[Time: 3 Hours]

[Max. Marks: 70]

**Note:** This question paper contains two parts A and B.  
Part A is compulsory which carries 20 marks. Answer all questions in Part A.  
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART-A**

**(20 Marks)**

- 1 a) What is rectifier and types of rectifiers [2M]
- b) Draw the tunnel diode and write any two applications [2M]
- c) Explain the CB configuration? [2M]
- d) Define the operating point [2M]
- e) Draw the basic gates and its truth tables [2M]
- f) Compare logic families [2M]
- g) What are the applications of 4:1 Multiplexer (MUX)? [2M]
- h) What are Minterm and Maxterm? [2M]
- i) Difference between latches and flip flops [2M]
- j) What are the types of the registers? [2M]

**PART-B**

**(50 Marks)**

2. Discuss about V-I Characteristics of PN junction diode and its applications [10M]
- OR**
3. Draw the circuit diagram of a half wave rectifier circuit and explain its working with waveforms. [10M]
4. With neat sketch explain the voltage divider bias circuit and with operating point. [10M]
- OR**
5. Explain about emitter follower with neat sketch? [10M]
6. Explain the operation of an n-channel JFET and compare its with BJT [10M]
- OR**
7. Draw the construction of MOSFET and explain its details operation [10M]
8. Use the tabulation procedure to generate the set of prime implicants and to obtain all minimal expressions for the following function  $F(a,b,c,d) = \sum m(1,5,6,12,13,14) + \sum d(2,4)$  [10M]
- OR**
9. Design and explain the 3-8 decoder. [10M]
10. Explain SR flip flop and JK flip flop with truth tables [10M]
- OR**
11. Explain ripple counter with neat sketch? [10M]

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