



ACE
Engineering College
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An AUTONOMOUS Institution



Question Paper Code:

EC301ES

ACE-R20

Semester End Examination
II B. Tech- I Semester- MARCH-2022
ANALOG AND DIGITAL ELECTRONICS
(Common to CSE, IT)

Time: 3 Hours

Max. Marks: 70

H. T. No

Answer any 5 Questions out of 8 Questions from the following

Q.No	Question	Marks
1. a)	Explain the operation of silicon p-n junction diode and obtain the forward and reverse bias V-I characteristics.	7
b)	Define Diffusion capacitance? Also derive the expression for C_D ?	7
2. a)	Draw and explain the V-I characteristics of a tunnel diode.	6
b)	Explain the working of a half wave rectifier with necessary waveforms.	8
3. a)	Discuss about thermal run away and thermal stability.	4
b)	Explain the input and output characteristics of common base configuration.	10
4. a)	Compare CB, CE and CC transistor configurations.	5
b)	Explain compensation techniques with respect to BJT biasing.	9
5. a)	Write the differences between BJT and FET.	5
b)	Describe the operations of all logic gates with an example.	9
6. a)	Express the following function into sum of min terms and product of max terms. $F(A,B,C,D)=B'D+A'D+BD$	7
b)	Simplify the following Boolean function using 4-variable K-map. $F(w,x,y,z)=\sum(1,3,7,11,15) + \sum d(0,2,5)$	7
7. a)	Draw the logic diagram of 8x1 multiplexer and explain its operation.	7
b)	Draw the truth table of SR flip-flop and obtain its characteristic equation.	7
8.	Explain in detail about 3-bit ripple counter with neat diagram.	14