

Code No: 153AB**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD****B. Tech II Year I Semester Examinations, August/September - 2022****ANALOG AND DIGITAL ELECTRONICS****(Common to CSE, IT, ECM, ITE, CSE(SE), CSE(CS), CSE(N))****Time: 3 Hours****Max.Marks:75**

Answer any five questions
All questions carry equal marks

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- 1.a) Discuss the different types of junction breakdowns that can occur in a reverse biased diode.
- b) Explain operation of diode in forward bias and reverse bias condition. Draw V-I characteristics of diode. [8+7]
- 2.a) Explain about the full-wave center-tap rectifier with L section filters and also draw suitable diagram and waveforms.
- b) Write a short note on diffusion capacitance and diode switching times. [8+7]
- 3.a) With neat diagrams and necessary equations, explain the effect of coupling capacitor and bypass capacitor on the performance of an amplifier at low-frequencies?
- b) Explain how self-biasing can be done in a BJT with relevant sketches and waveforms? [8+7]
- 4.a) Write equations of voltage gain, current gain, Input impedance and Output impedance of CE amplifier.
- b) Explain how transistor acts as an amplifier? [10+5]
- 5.a) Bring out the differences between BJT and FET. Compare the three configurations of JFET amplifiers.
- b) With the help of a neat schematic, explain the functioning of a common drain amplifier. [8+7]
- 6.a) Define the De Morgan Laws with suitable example.
- b) Implement the basic logic gates by using modified DTL gates, HTL and TTL gates. [6+9]
- 7.a) Explain the function of a Encoder with necessary diagrams and discuss its applications.
- b) Design the 4-bit binary Adder-Subtractor with suitable diagram. [6+9]
- 8.a) Give the design of 3 bit Ring counter and explain its operation with waveforms. Also give the applications of ring counter.
- b) Obtain the characteristic equations of D and T flip flops. [9+6]

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