

Code No: 134CC

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JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech II Year II Semester Examinations, July/August - 2021

PULSE AND DIGITAL CIRCUITS

(Common to ECE, ETM)

Time: 3 Hours

Max. Marks: 75

**Answer any Five Questions
All Questions Carry Equal Marks**

- 1.a) Derive an expression for the output of a high-pass circuit excited by step input.
b) A symmetrical square wave whose peak-to-peak amplitude is 8V and whose average value is zero is applied to an RC integrating circuit. The time constant is equal to half-period of the square wave. Find the peak to peak value of the output amplitude. [9+6]
- 2.a) Draw and explain the response of RLC circuit for a step input.
b) Derive an expression for the percentage tilt of the output of a high pass circuit with large time constant excited by a symmetrical square wave with zero average value. [8+7]
3. Classify different types of clipper circuits. Give their circuits and explain their operation with the aid of transfer characteristics. [15]
- 4.a) Describe in detail about clipping at two independent levels.
b) Design a negative clamper with positive and negative biases and then, explain the same. [7+8]
- 5.a) Give a brief note on piece-wise linear diode characteristics.
b) Write short notes on diode switching times. [7+8]
- 6.a) Discuss in detail about breakdown voltages of a transistor.
b) Write a short note on switching characteristics of transistor. [6+9]
- 7.a) Derive the relation between slope error, displacement error and transmission error.
b) With the help of a neat circuit diagram, explain the working of a transistor constant current sweep circuit. [7+8]
- 8.a) Explain the working of four diode sampling gate with the help of neat circuit diagram.
b) Why a OR gate is called mixing circuit? Draw a diode OR circuit for positive logic and explain how it works. [8+7]

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