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# B.Tech. (Sem. - 5th)

## PULSE AND DIGITAL SWITCHING CIRCUITS

**SUBJECT CODE : EC - 309**

**Paper ID : [A0315]**

**[Note : Please fill subject code and paper ID on OMR]**

**Time : 03 Hours** **Maximum Marks : 60**

**Instruction to Candidates:**

1) Section - A is **Compulsory**.
2) Attempt any **Four** questions from Section - B.
3) Attempt any **Two** questions from Section - C.

### Section - A

*Q1)* *(10 x 2 = 20)*

a) What is main reason of applying a pulse voltage input in a high pass RC circuit?

b) Define overdamped response.

c) Define half power frequency.

d) What are amplitude selectors?

e) What is short circuit current gain-bandwidth product in wideband amplifier?

f) What is criteria for a good integrating circuit?

g) "Clipping circuit is to remove a certain portion of the input signal above or below a certain level". Is the statement correct and why.

h) Does the value of $\beta$ in astable multivibrator greater than 1.

i) Write any factor that contribute to the delay time in a transistor?

j) On what parameters does the frequency of oscillation of an astable multivibrator depends?

## Section - B

*(4 x 5 = 20)*

*Q2)* Describe with circuit diagram response of a high pass RC circuit to a sinusoidal voltage input.

*Q3)* Discuss with diagram working of a circuit that will obtain nearly underdamped oscillations.

*Q4)* Derive an expression for a short circuit current gain bandwidth product for a CE transistor configuration.

*Q5)* Describe how a diode behaves as a switch?

*Q6)* Discuss behaviour of MOS transistor as a switch.

## Section - C

*(2 x 10 = 20)*

*Q7)* (a) Describe with a circuit diagram and waveform function of a transistor clipper.

(b) What is a double diode clipper?

*Q8)* (a) Describe a clamping circuit by taking source and diode resistance into account.

(b) Discuss with diagram and waveform working of a sweep generator?

*Q9)* (a) Describe with circuit diagram and waveforms working of Astable multivibrator.

(b) Discuss various applications of Bistable multivibrator.