# Waveform Generation

## Lecture - 14

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**B.Sc (Electronics)**

**TDC PART - III**

**Paper – 6**

**Unit – 8**

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## ➢ Transistor Mono-Stable Multivibrator Output Waveforms (PART – 4)

⇨ The output waveforms at the **Collectors terminals** of **Transistor Q1** and **Transistor Q2** along with the **Trigger input** given at the **Base terminal** of **Transistor Q1** are shown in the following **Figure (8)** below.

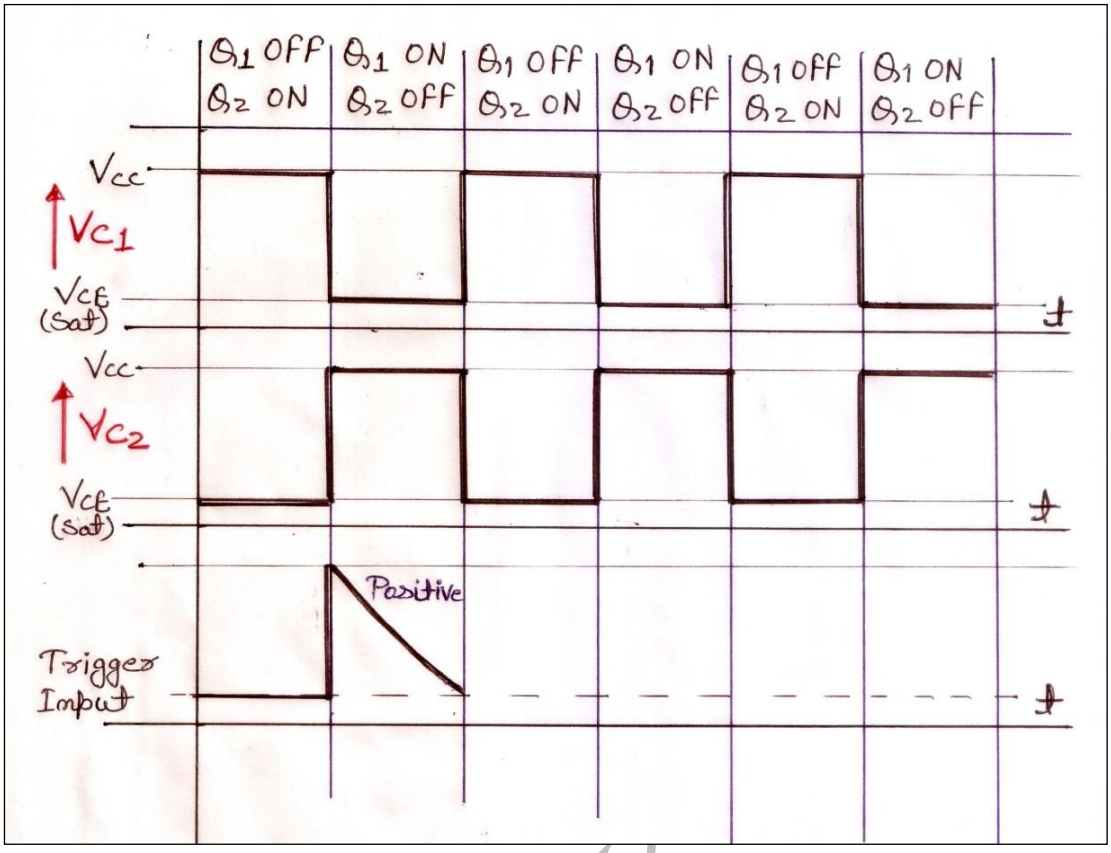


**Fig. (8)** Shown MMV Output Square Wave forms at the both Transistor Q1 and Q2 Output Terminal Voltage **$V_{C1}$** and **$V_{C2}$** along with Positive Input Trigger Pulse.



⇨ The **Width of this Output Pulse** depends upon the **RC time constant**. Hence it depends on the values of **$R_2C_1$**. **The Width or Duration of the Pulse is given by**

⇨ **$T = 0.69\ R_2C_1$**

⇨ **It is also known as the One-Shot Period**. The **Trigger input** given will be of **very short duration**, just to **initiate the action**. This **triggers the circuit** to **change** its **State from Stable State to Quasi-Stable or Meta-table or Semi-Stable State**, in which the **circuit remains for a short duration**. There will be **One Output Pulse** for **One Trigger Pulse**.

## ➢ Advantages of Mono-Stable Multivibrator

⇨ The advantages of Mono-Stable Multivibrator are as follows:-

**(1)** One trigger pulse is enough.

**(2)** Circuit design is simple

**(3)** Inexpensive

## ➢ Disadvantages of a Mono-Stable Multivibrator

⇨ The drawbacks or Disadvantages of a Mono-Stable Multivibrator are as follows :-

**(1)** The major drawback of using a **Mono-Stable Multivibrator** is that the time between the applications of trigger pulse T has to be greater than the **RC time constant** of the circuit.

## ➢ Uses of a Mono-Stable Multivibrator

⇨ The Uses or Applications of a Mono-Stable Multivibrator are as follows :-

**(1)** The falling part of the output pulse from **Mono-Stable Multivibrators (MMV)** is often used to trigger another pulse generator circuit thus producing a pulse delayed by a **time T** with respect to the input pulse.

**(2) Mono-Stable Multivibrators (MMV)** is used for regenerating old and worn out pulses. Various pulses used in computers and telecommunication systems become somewhat distorted during use. An **Mono-Stable Multivibrators** can be used to generate new, clean and sharp pulses from these distorted and used ones.

**(3) Mono-Stable Multivibrators (MMV)** is used for pulse stretching.

**(4) Mono-Stable Multivibrators (MMV)** is used in computer logic systems and communication navigation equipment.

**(5) Mono-Stable Multivibrators (MMV)** are used in television circuits and control system circuits.

# THE END

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