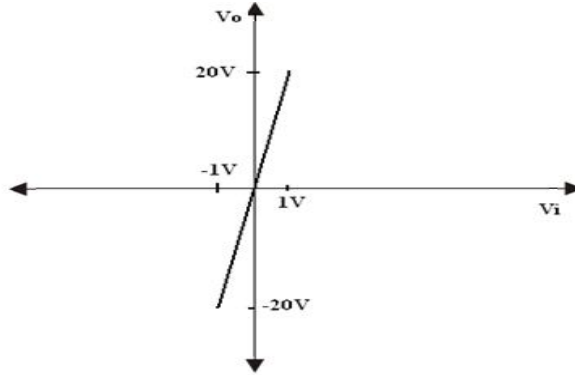


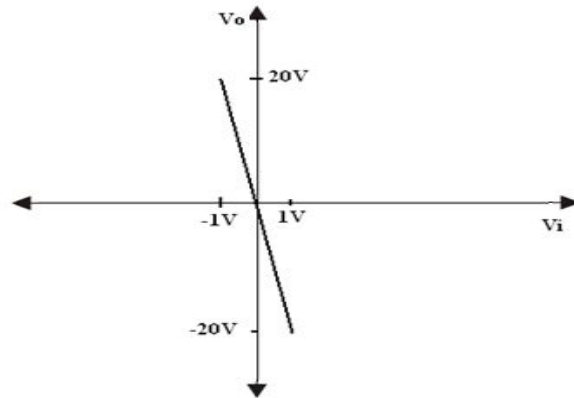
**EC 04 507 (P) LINEAR INTEGRATED CIRCUIT LAB.**

1. Obtain the following transfer characteristics.



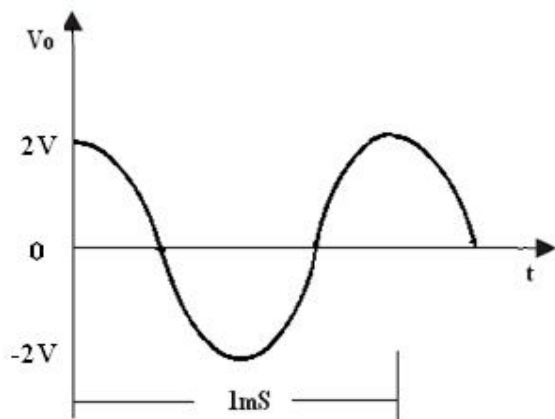
Hint: Non-inverting amplifier with gain 20.

2. Obtain the following transfer characteristics.

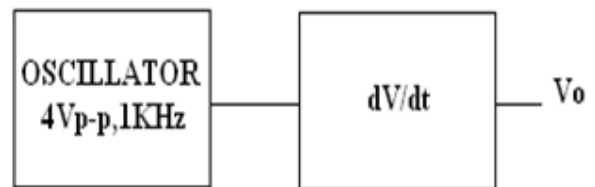


Hint: Inverting amplifier with gain 20.

3. Generate the waveform,



Hint:



4. **Generate a pulse waveform of frequency 1 KHz and 50% duty cycle.**

Hint: AMV using IC 555 timer with 1 KHz and  $T_c = T_d = 0.5mS = 0.69RC$ , where  $R=RA=RB$ . (Diode must be connected across the resistor  $R_B$ ).

5. **Design and setup a filter with roll off rate = 60 dB/decade.**

Hint: Use a second order HPF cascaded with another first order HPF.

6. **Design and setup a filter with roll off rate = -40 dB/decade.**

Hint: Second order LPF.

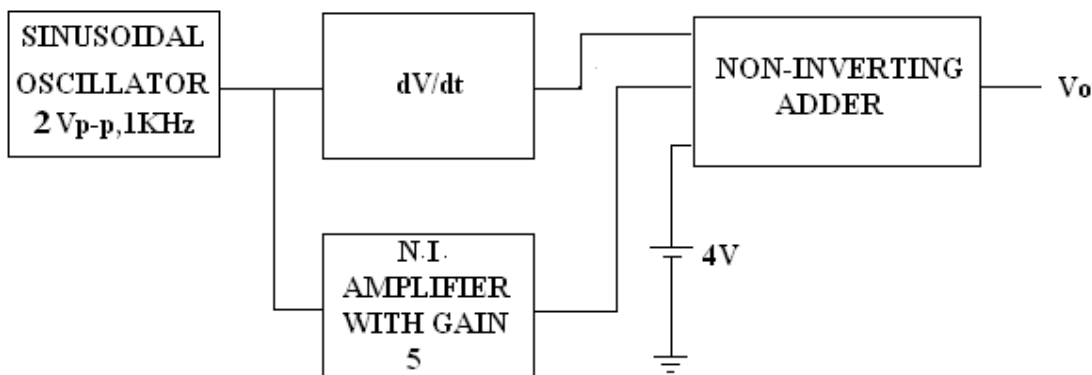
7. **Design and setup a filter with roll off rate = 40 dB/decade, which blocks all the signals of frequency less than 2 KHz and greater than 6 KHz.**

Hint: Second order LPF with higher cut off frequency 6 KHz cascaded with second order HPF with lower cut off frequency 2 KHz.

8. **Realize the expression,**

$$y=5x + dx/dt + 4 \quad ; x=\sin (2000\pi t).$$

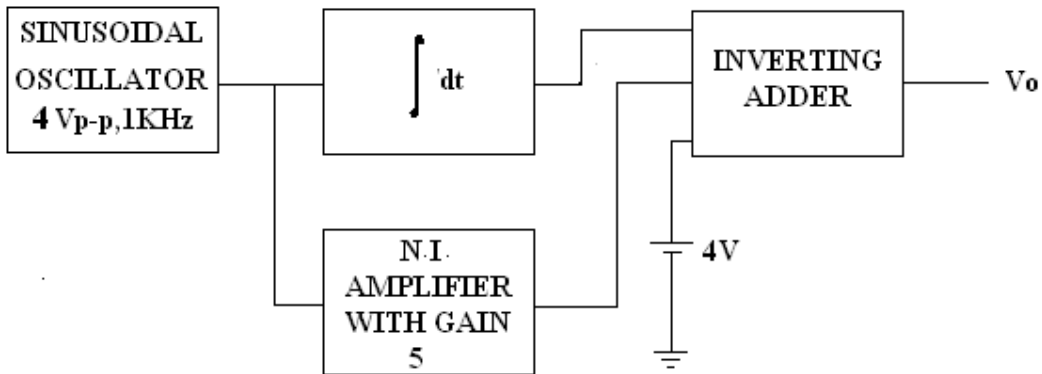
Hint:



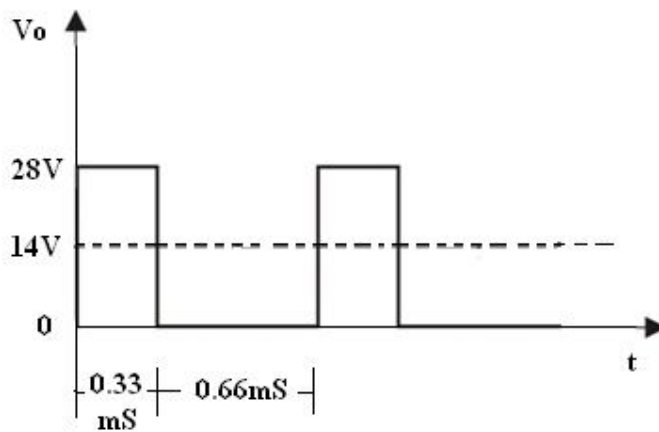
9. Realize the expression,

$$y = -(5x + \int x \, dx + 4) \quad ; \quad x = 2\sin(2000\pi t)$$

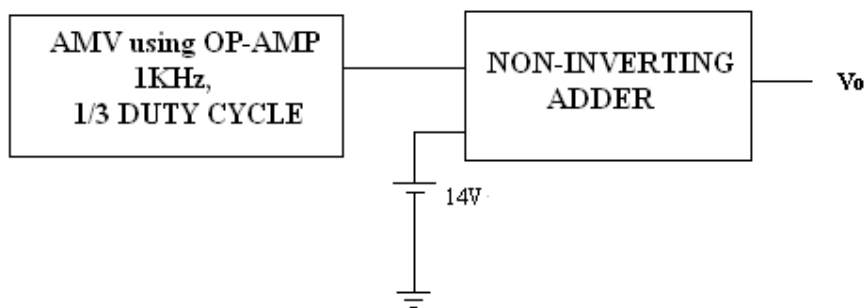
Hint:



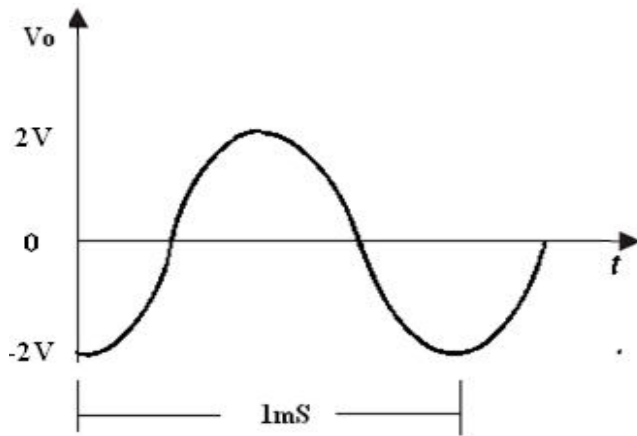
10. Generate the waveform,



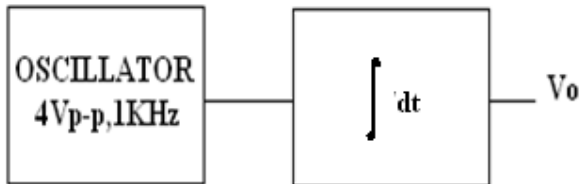
Hint:



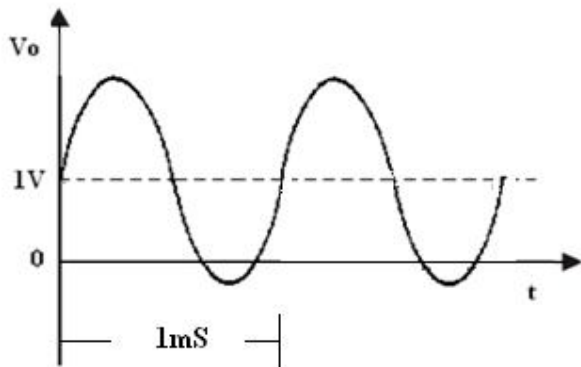
**11. Generate the waveform,**



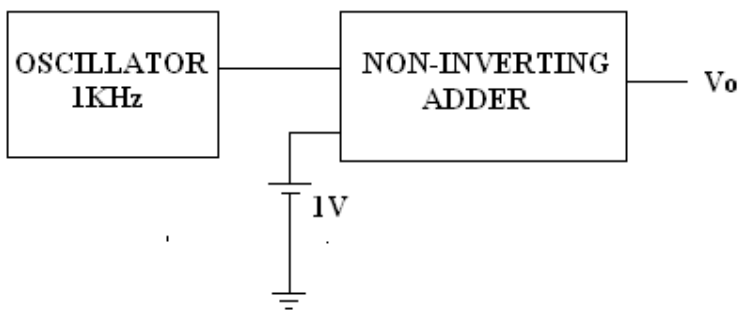
Hint:



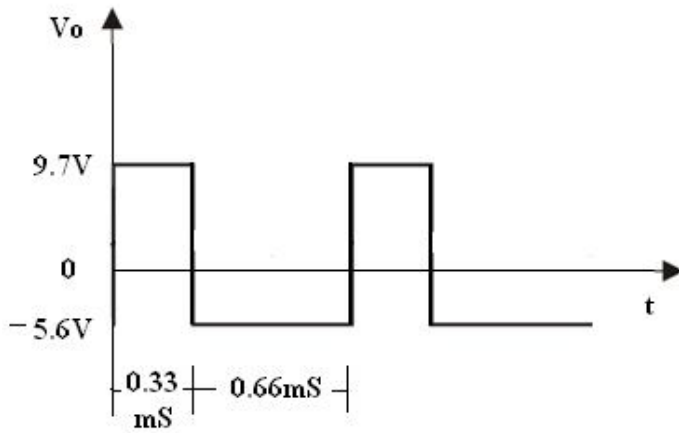
**12. Generate the waveform,**



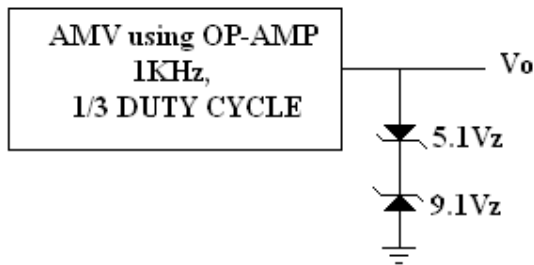
Hint:



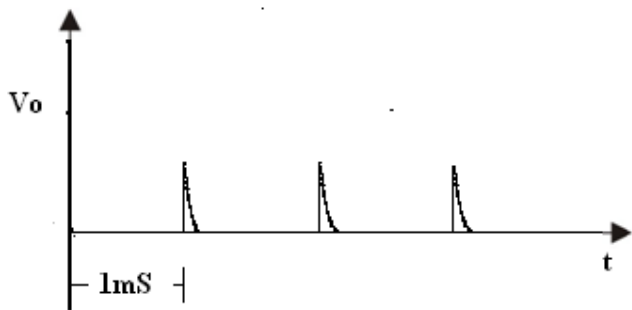
**13. Generate the waveform,**



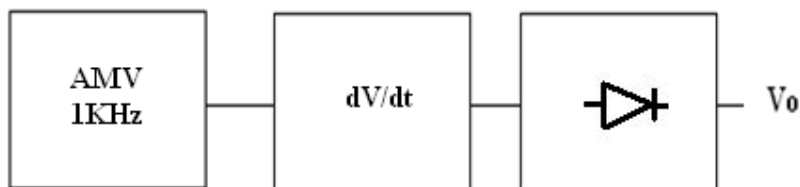
Hint:



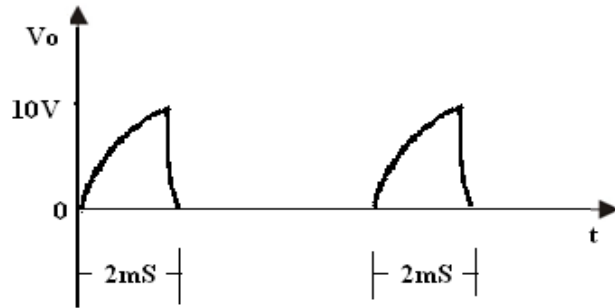
**14. Generate the waveform,**



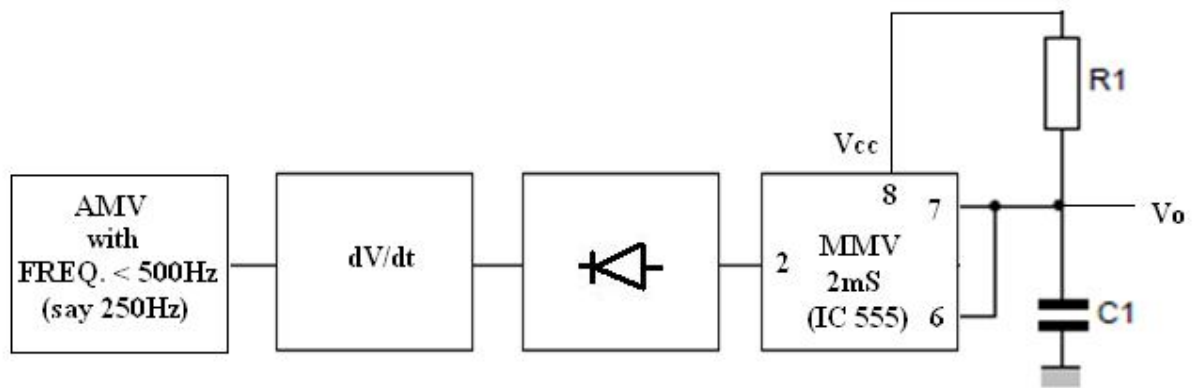
Hint:



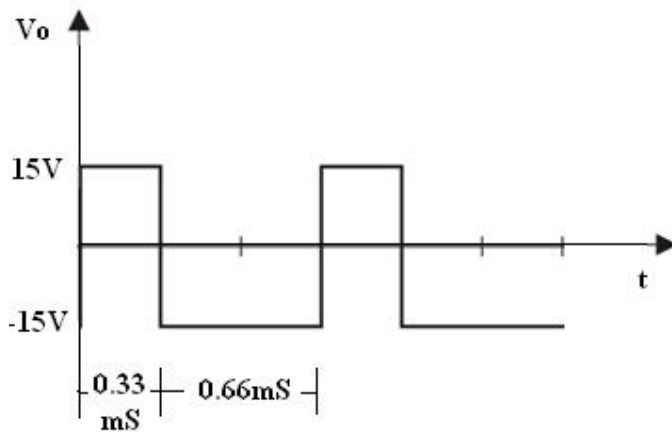
15. Generate the waveform,



Hint:

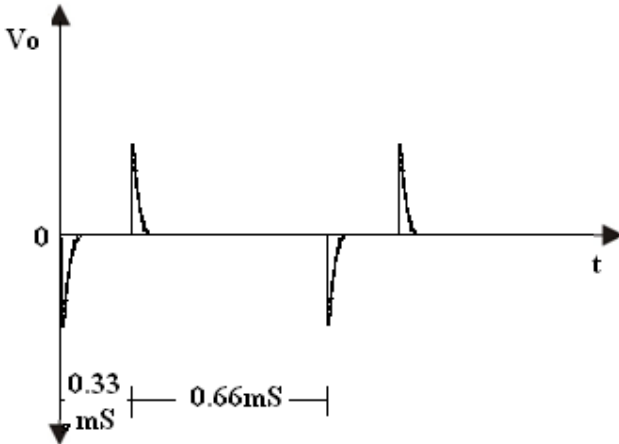


16. Generate the waveform,

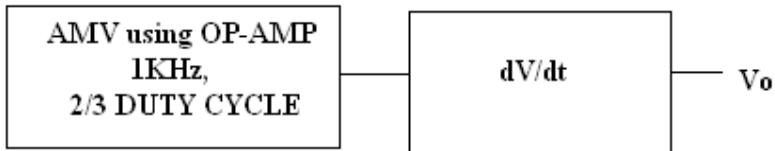


Hint: AMV using Op-amp with frequency 1 KHz and duty cycle 1/3.

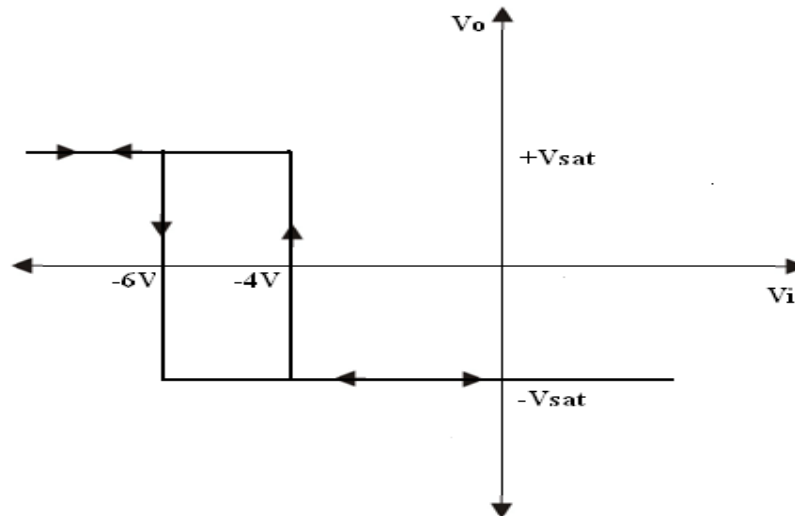
**17. Generate the waveform,**



Hint:



**18. Obtain the following transfer characteristics.**

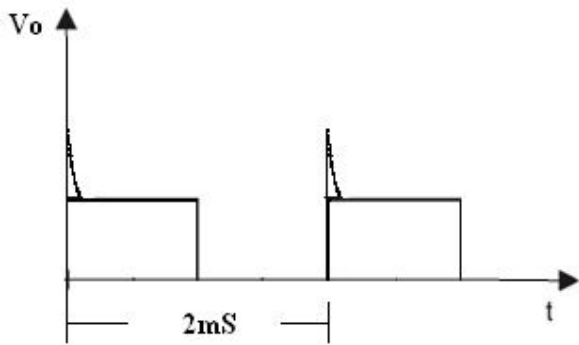


characteristics.

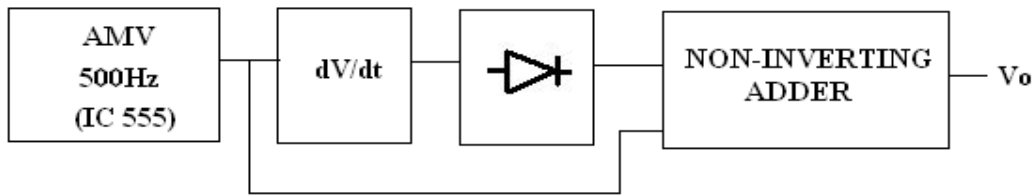
Hint: Schmitt trigger with bias supply. (Refer Lab Manual Volume 2 – page no:102)

19.

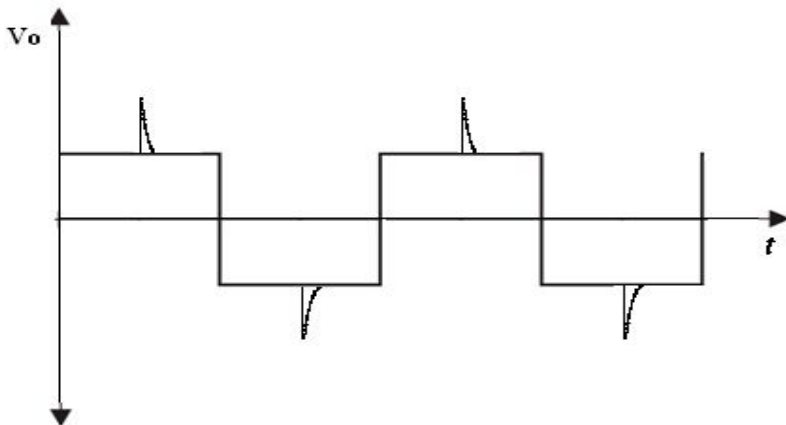
Generate the waveform,



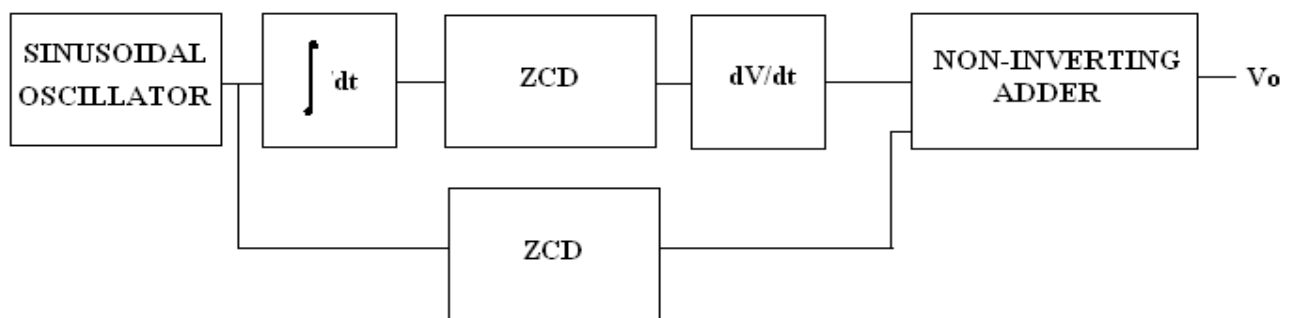
Hint:



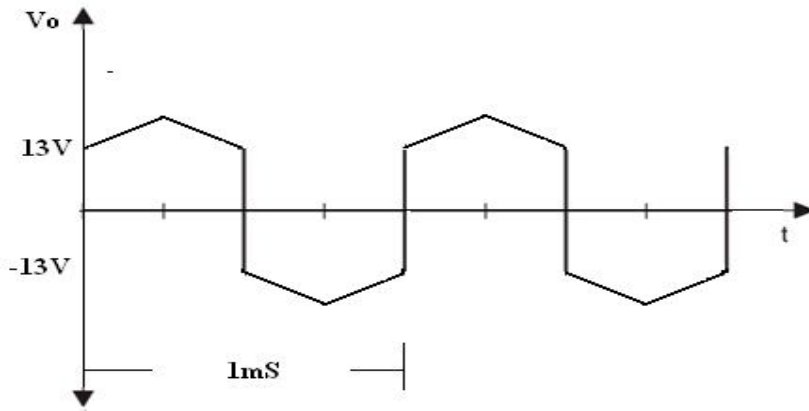
20. Generate the waveform,



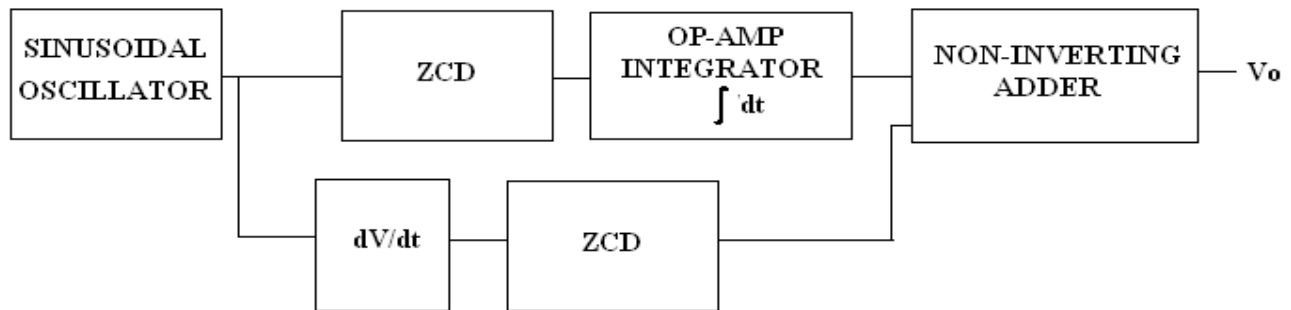
Hint:



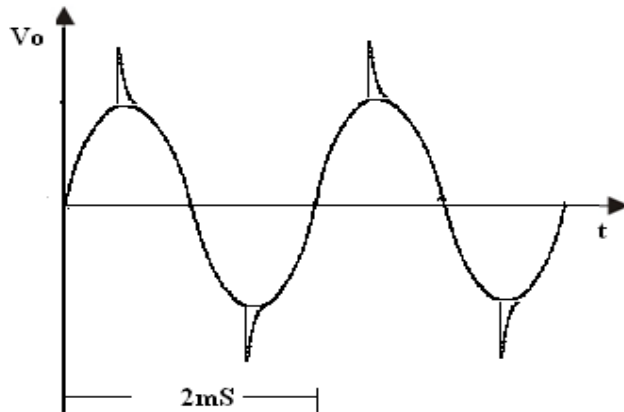
**21. Generate the waveform,**



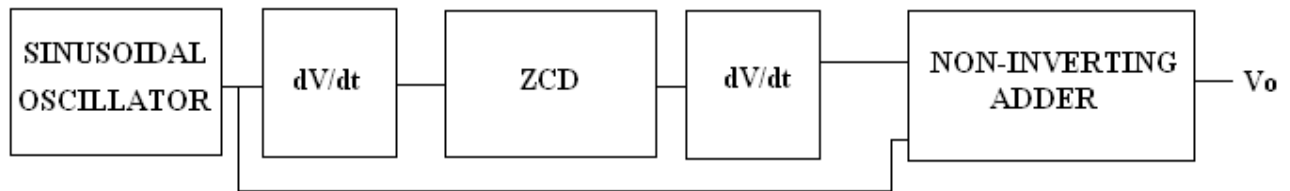
Hint:



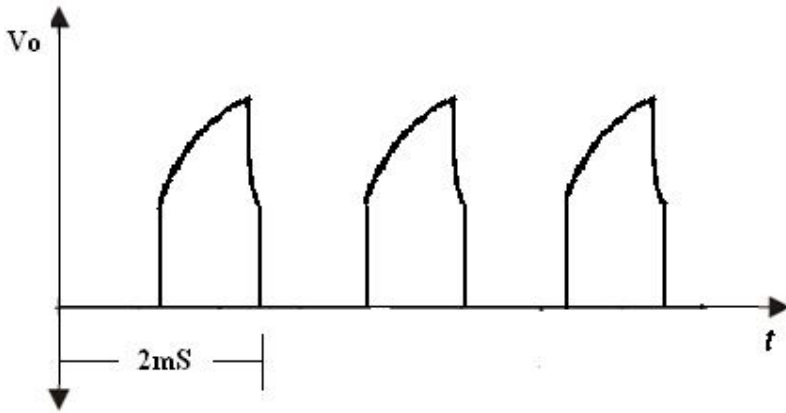
**22. Generate the waveform,**



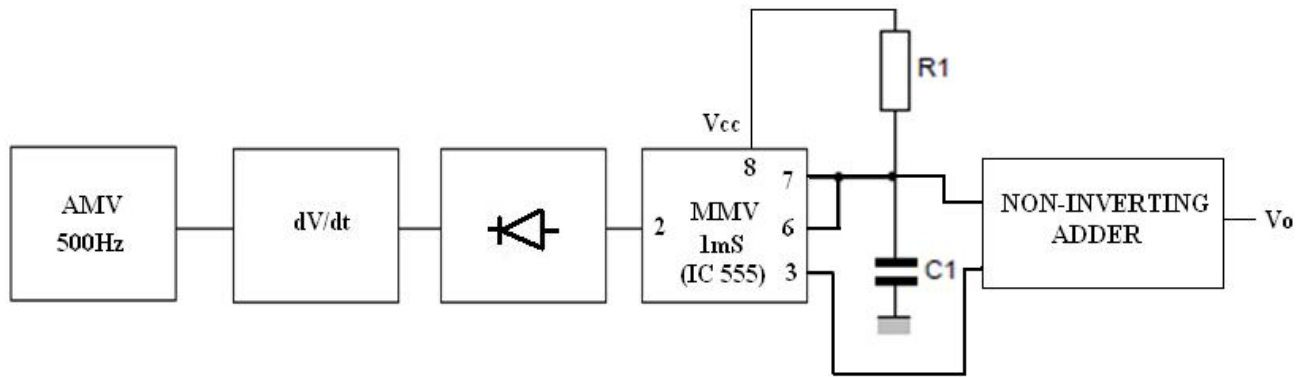
Hint:



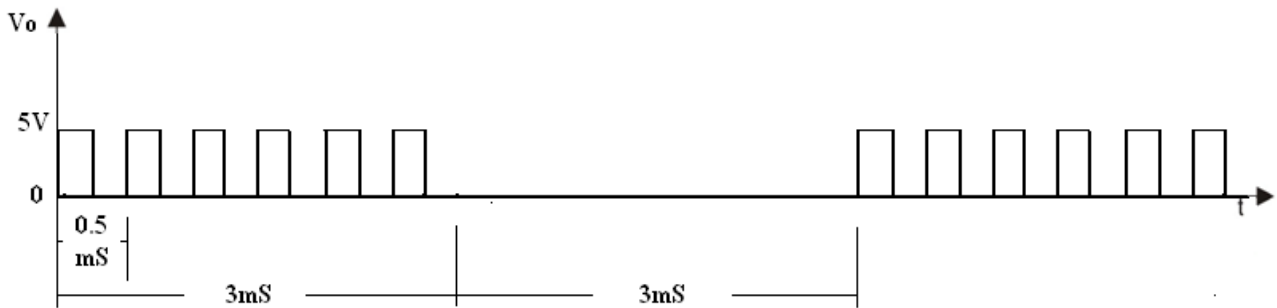
**23. Generate the waveform,**



Hint:

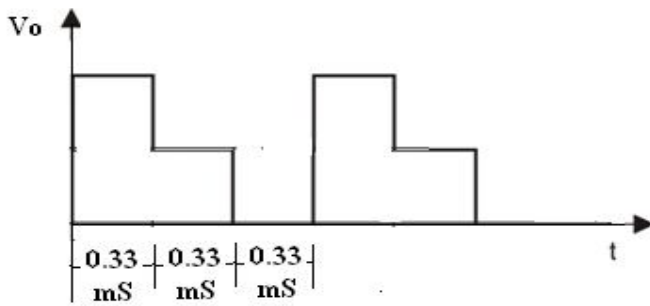


**24. Generate the waveform,**

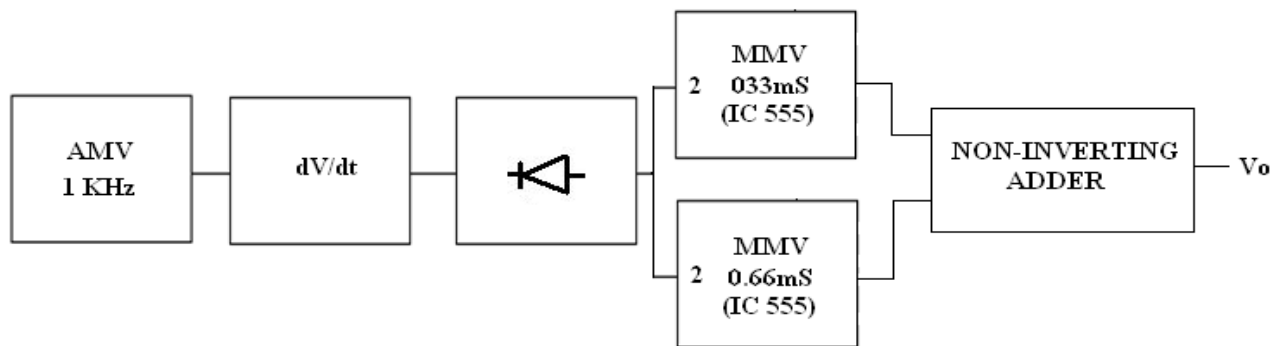


Hint: Design two AMVs one for 2 KHz and other for 0.166 KHz (1/6mS) frequency using IC 555 timer. The 0.166 KHz square waveform output must be fed to the RESET pin (pin no: 4) of second multivibrator.

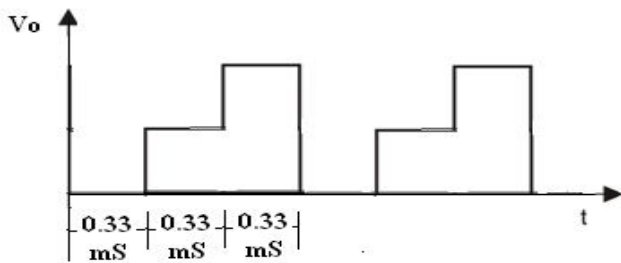
25. Generate the waveform,



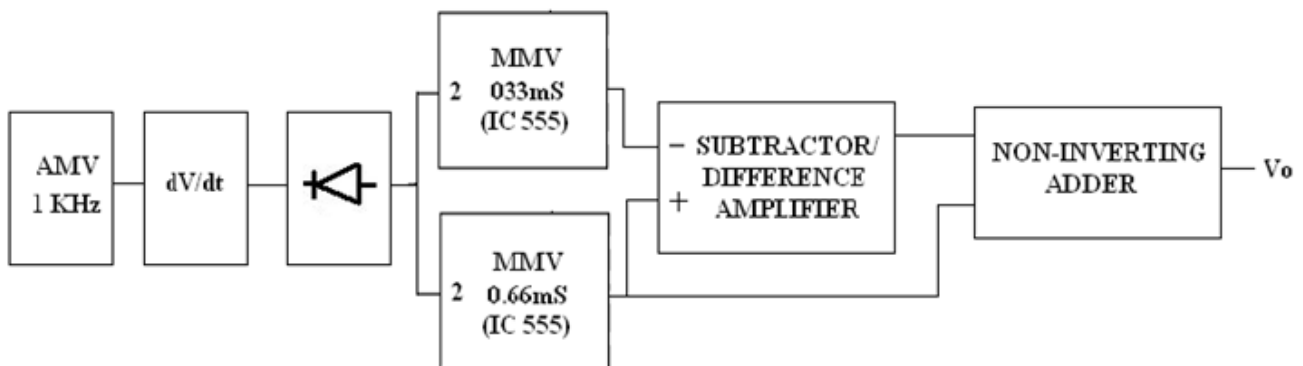
Hint:



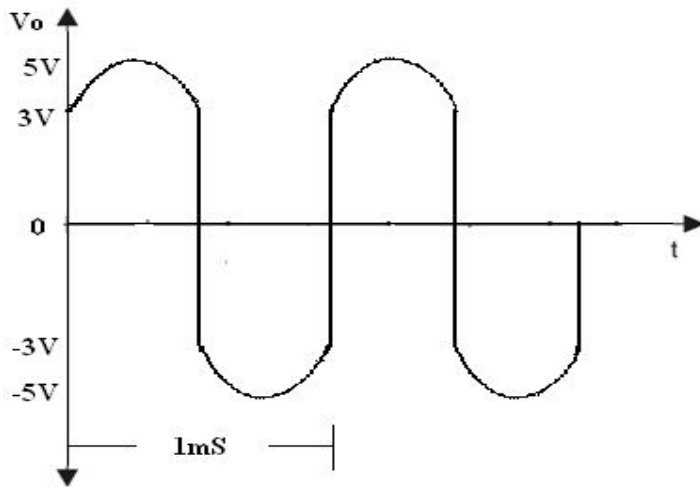
26. Generate the waveform,



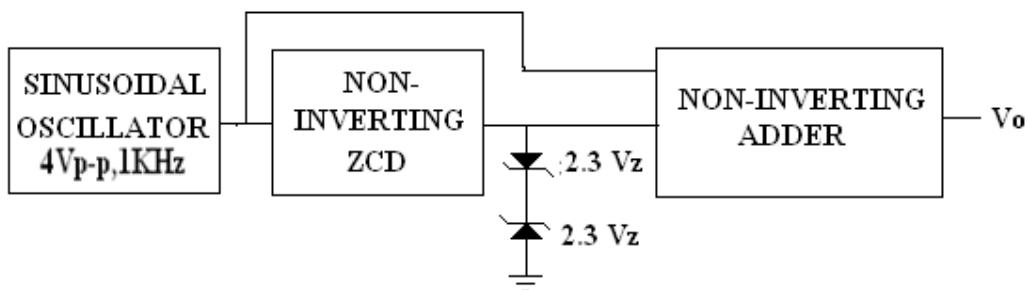
Hint:



**27. Generate the waveform,**



Hint:



**28. A bulb at the railway station will be switched ON at 9am by the Station Master. It should be switched OFF at 9.12am automatically. Design and setup a circuit to operate the bulb.**

Hint: Use MMV with 12 minutes quasi period. Station Master can be switched ON the bulb by triggering the MMV.

**29. Design and setup a logic circuit to glow an LED four times at every minutes.**

Hint: Design two AMVs, one for 4S T-on and 56S T-off and other for 1S square wave using IC 555 timer. The first multivibrator output must be fed to the RESET pin (pin no: 4) of second multivibrator.

**30. Design and setup a logic circuit to glow an LED three times at every alternate minutes.**

Hint: Design two AMVs one with 3S T-on and 117S T-off and other for 1S square wave using IC 555 timer. The first multivibrator output must be fed to the RESET pin (pin no: 4) of second multivibrator.

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NB: For solving questions starting with “OBTAIN” (eg: - Qn.No: 1), signal generators can be used. But in case of questions starting with “GENERATE” (eg:- Qn.No: 3) , **no** signal generators can be used.

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\*\*\*\*\* WISH YOU ALL THE BEST \*\*\*\*\*