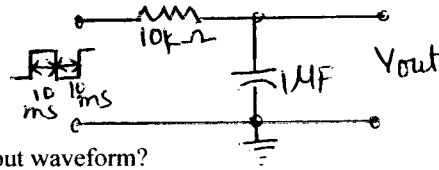
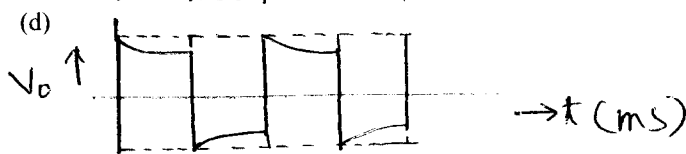
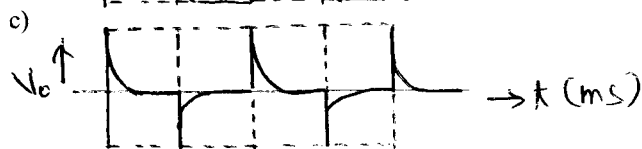
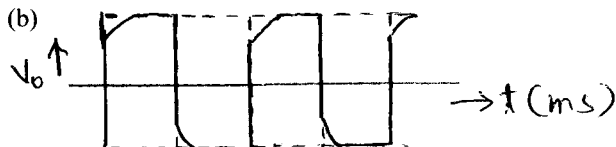
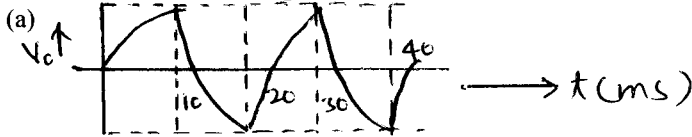


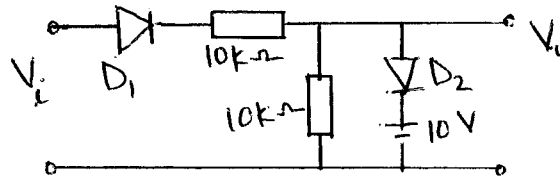
9. A 50 Hz symmetric square wave is applied to the RC-circuit shown in the diagram given below.



Which one of the following is the correct shape of the output waveform?



10. Consider the following circuit



For the circuit shown above, which one of the following is a correct statement?

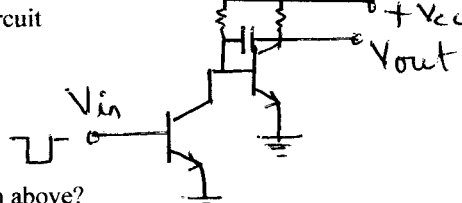
- a) D_2 does not conduct for any value of V_i b) $v_0 = 10\text{ V}$ for all values of $v_i > 10\text{ V}$
 c) $v_0 = 0\text{ V}$ for all values of $v_i < 0\text{ V}$ d) $v_0 = 10\text{ V}$ for all values of $v_i > 0\text{ V}$

11. Assertion (A): In a transistor switching circuit, it is desirable that the transistor should not be driven into hard saturation for fast switching applications.

Reason (R): When a transistor is under saturation on state, both its emitter-base and collector-base junctions remain under forward bias.

- a) Both A and R are true R is the correct explanation of A b) Both A and R are true but R is NOT the correct explanation of A
 c) A is true but R is false d) A is false but R is true

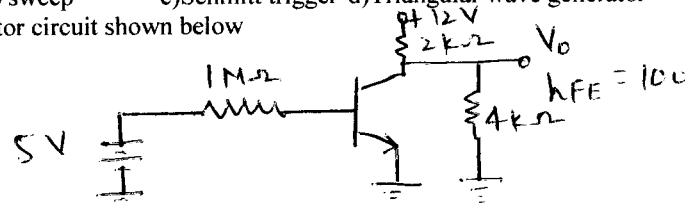
12. Consider the following circuit



What is the circuit shown above?

- a) Miller sweep b) Bootstrap sweep c) Schmitt trigger d) Triangular wave generator

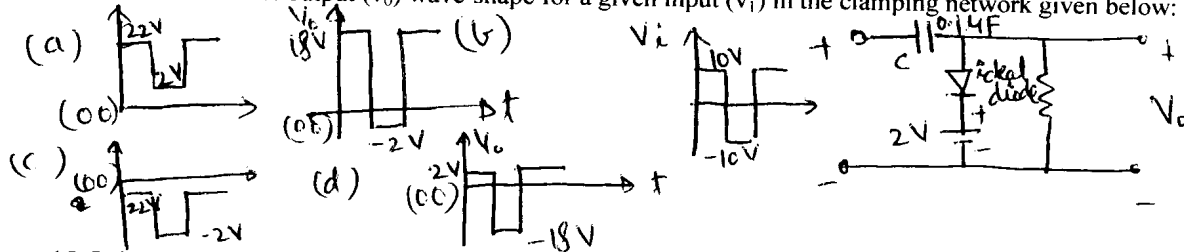
13. Consider the NPN transistor circuit shown below



What if the output voltage V_o in the above circuit?

- a. 0 V b. 12 V c. 9 V d. 5 V

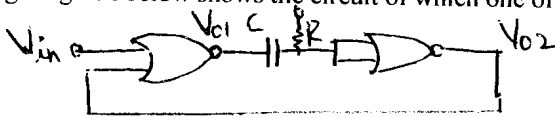
14. Select the correct output (v_o) wave-shape for a given input (v_i) in the clamping network given below:



15. Pulses of definite width can be obtained from irregular shaped pulses:

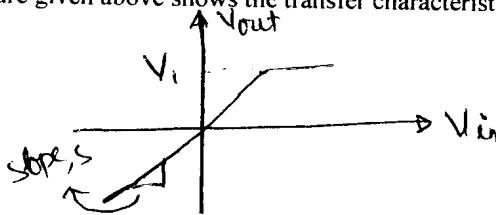
- a. When it is given as input to a monostable multivibrator
 b. When it is give as triggering signal to a bistable multivibrator
 c. When it is used as input to a Schmitt trigger
 d. When it is used as input to a pulse transformer.

16. The figure given below shows the circuit of which one of the following?



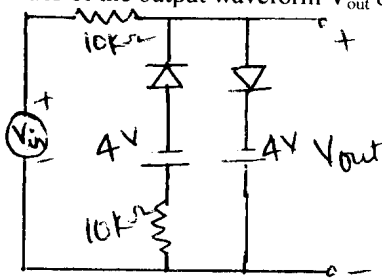
- a) Bi-stable multi-vibrator b) Schmitt trigger c) Monostable multi-vibrator d) Astable multi-vibrator

17. The figure given above shows the transfer characteristics of which one of the following.



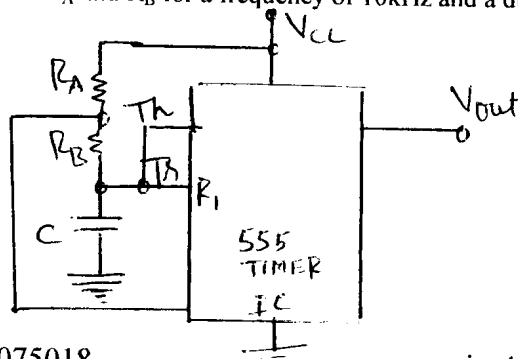
- a) Peak clipper b) Bottom clipper c) Clamper d) Two level clipper

18. A voltage signal $10 \sin \omega t$ is applied to the circuit with ideal diodes, as shown in figure. The maximum, and minimum values of the output waveform V_{out} of the circuit are respectively $10k\Omega$



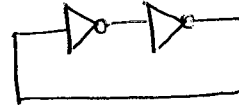
- a) + 10 V and - 10 V b. + 4 V and - 4 V c. + 7 V and - 4 V d. + 4 V and - 7V

19. The circuit figure shows a 555 Timer IC connected as an astable multivibrator. The value of the capacitor C is 10 nF. The values of the resistors R_A and R_B for a frequency of 10kHz and a duty cycle of 0.765 for the output voltage waveform are



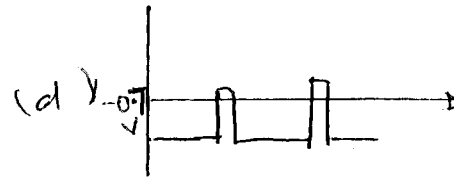
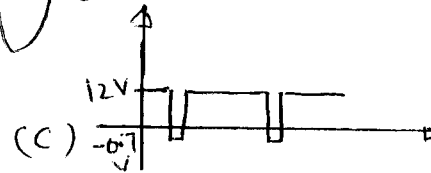
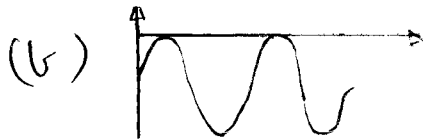
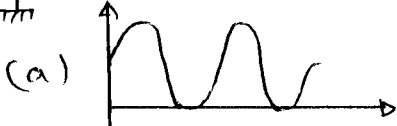
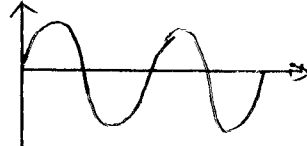
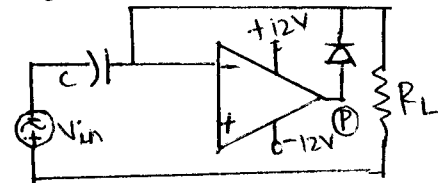
- a. $R_A = 3.62 \text{ k}\Omega$, $R_B = 3.62 \text{ k}\Omega$ b. $R_A = 3.62 \text{ k}\Omega$, $R_B = 7.25 \text{ k}\Omega$ c. $R_A = 7.25 \text{ k}\Omega$, $R_B = 3.62 \text{ k}\Omega$
 d. $R_A = 7.25 \text{ k}\Omega$, $R_B = 7.25 \text{ k}\Omega$

20. The digital circuit using two inverters shown in figure will act as

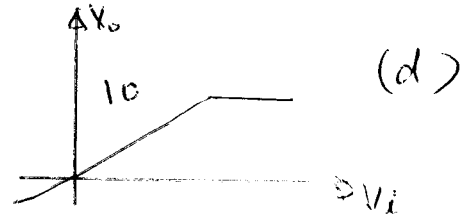
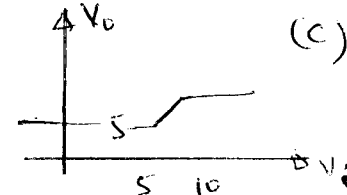
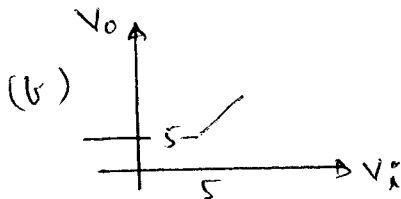
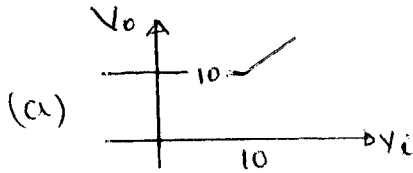
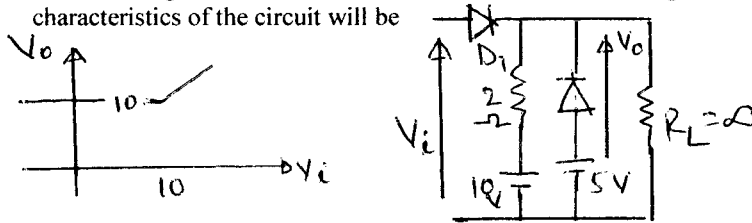


- a. a bistable multi-vibrator b. an astable multi-vibrator c. a monostable multi-vibrator
 d. an oscillator

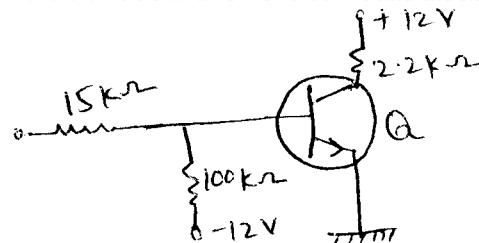
21. For a given sinusoidal input voltage, the voltage waveform at point P of the clamper circuit shown in figure will be



22. Assuming the diodes D_1 and D_2 of the circuit shown in figure to be ideal ones, the transfer characteristics of the circuit will be

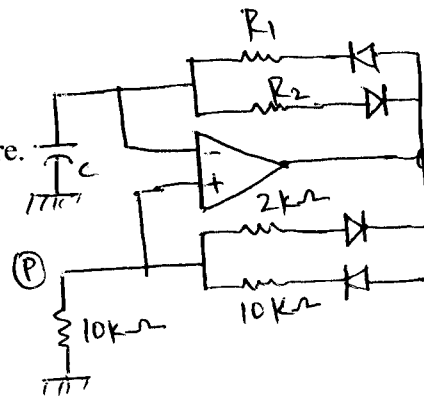
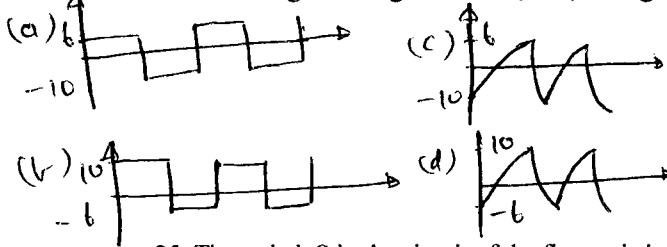


23. Consider the circuit shown in figure. If the β of the transistor is 30 and I_{CBO} is 20 nA and the input voltage is +5 V, the transistor would be operating in

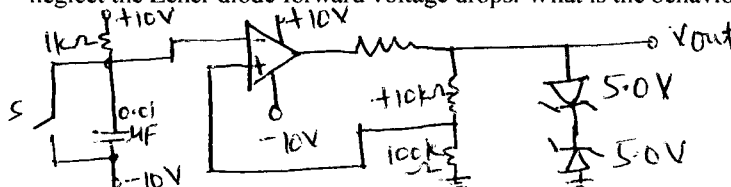


- a. saturation region b. active region c. breakdown region d. cut-off region

24. A relaxation oscillator is made using PAMP as shown in figure. The supply voltages of the OPAMP are $\pm 12V$. The voltage wave form at point P will be

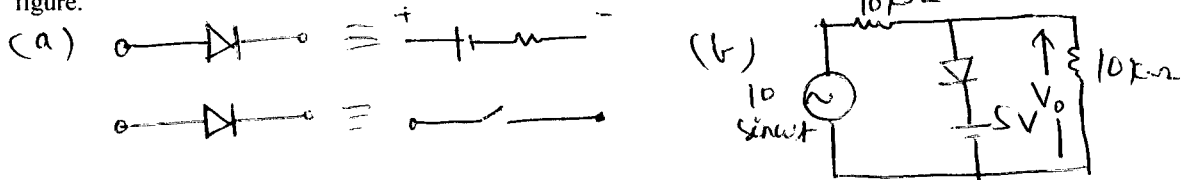


25. The switch S in the circuit of the figures is initially closed, it is opened at time $t = 0$. You may neglect the Zener diode forward voltage drops. What is the behaviour of V_{OUT} for $t > 0$?

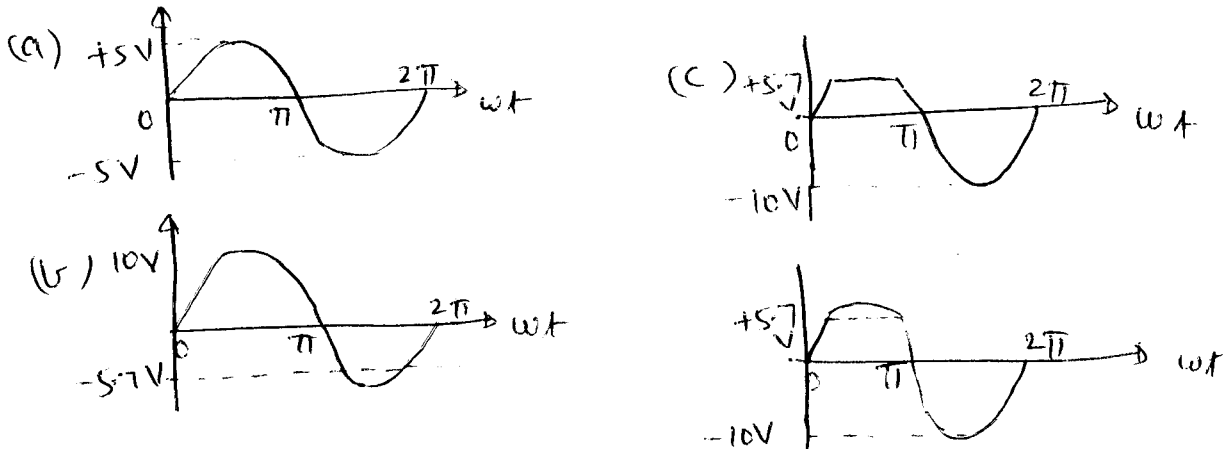


- a. It makes transition from -5V to +5V at $t = 12.98\mu s$
- b. It makes transition from -5V to +5V at $t = 2.57\mu s$
- c. It makes transition from +5V to -5V at $t = 12.98\mu s$
- d. It makes transition from +5V to -5V at $t = 2.57\mu s$

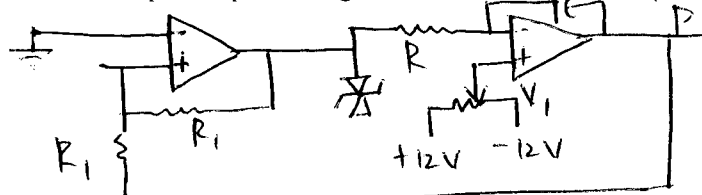
26. The equivalent circuits of a diode, during forward biased and reverse biased conditions are shown in the figure.



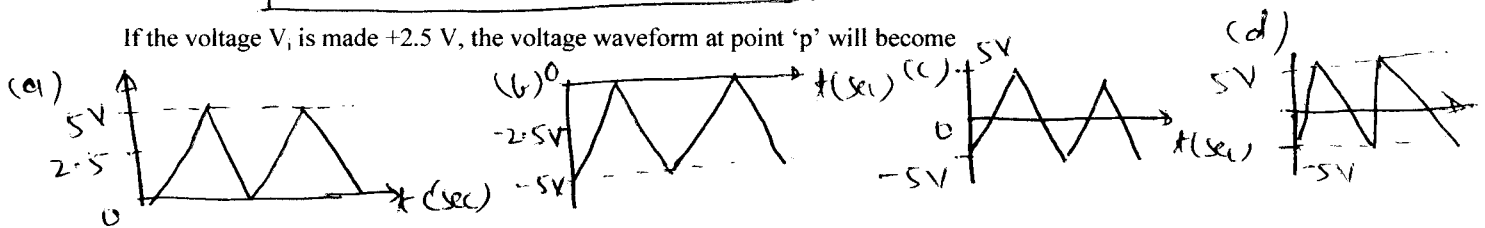
If such a diode is used in clipper circuit of figure given above, the output voltage (V_o) of the circuit will be



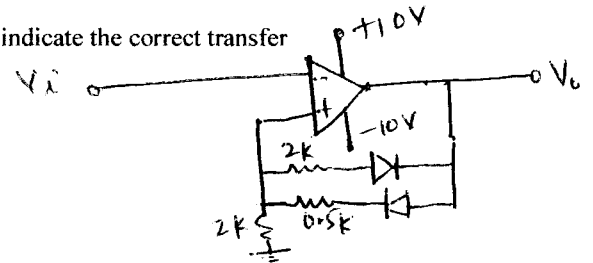
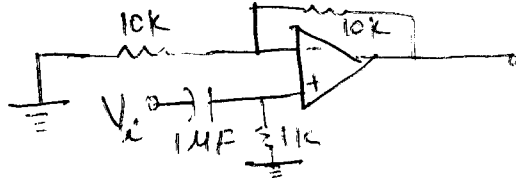
27. A waveform generator circuit using OPAMPs is shown in the figure. It produces a triangular wave at point 'P' with a peak to peak voltage of 5V for $V_i = 0V$.



If the voltage V_i is made +2.5V, the voltage waveform at point 'p' will become



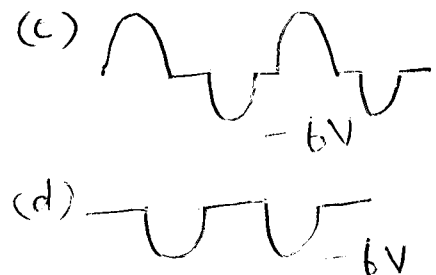
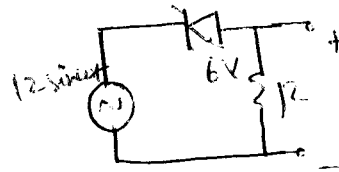
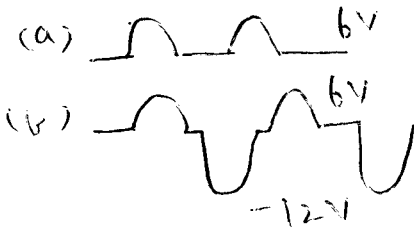
28. Given the ideal operational amplifier circuit shown in the figure indicate the correct transfer characteristics assuming ideal diode with zero cut-in voltage.



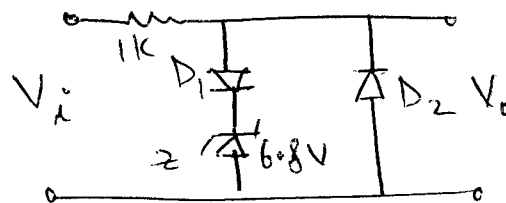
- a) high pass, 1000 rad/sec b) low pass, 1000 rad/sec c) high pass, 10000 rad/sec d) low pass, 10000 rad/sec

29. For the circuit shown below, assume that the zener diode is ideal with a breakdown voltage of 6 volts.

The waveform observed across R is



30. In the following limiter circuit, an input voltage $V_i = 10\sin 100\pi t$ is applied. Assume that the diode drop is 0.7 V when it is forward biased. The Zener breakdown voltage is 6.8 V.



The maximum and minimum values of the output voltage respectively are
 a) 6.1 V, -0.7 V b) 0.7 V, -7.5 V c) 7.5 V, -0.7 V d) 7.5 V, -7.5 V

PDC TEST-II KEY

- | | | | | | | | | | | | | |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|
| 1.b | 2.b | 3.b | 4.a | 5.b | 6.c | 7.a | 8.d | 9.a | 10.c | 11.b | 12.a | 13.a |
| | 14.d | 15.c | 16.c | 17.a | 18.d | 19.c | 20.a | 21.d | 22.a | 23.b | 24.c | 25.b |
| | 26.a | 27.a | 28.b | 29.b | 30.c | | | | | | | |