Analog Electronics

Practice Questions

1) The steady-state output (V_{out}), of the circuit shown below, will

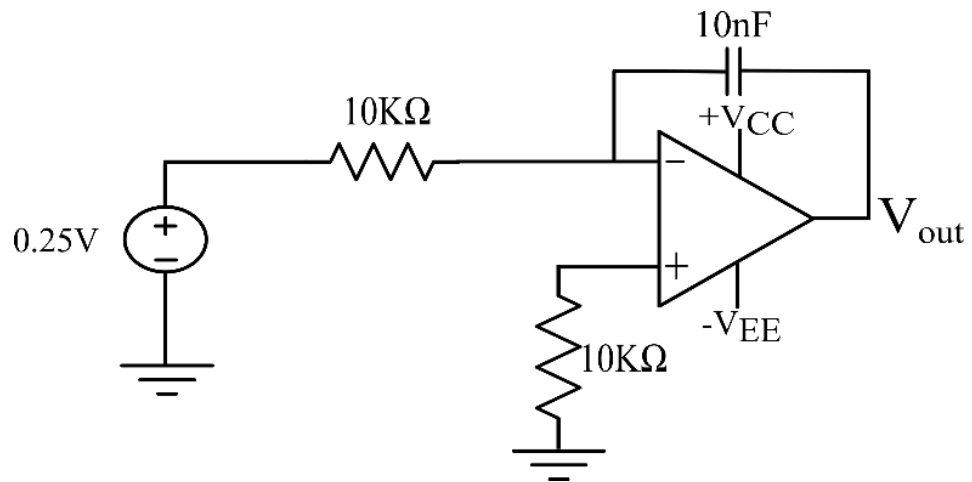Fig. 1.

a) Saturate to $+V_{CC}$
b) Saturate to $-V_{EE}$
c) 0.25V
d) -0.25V

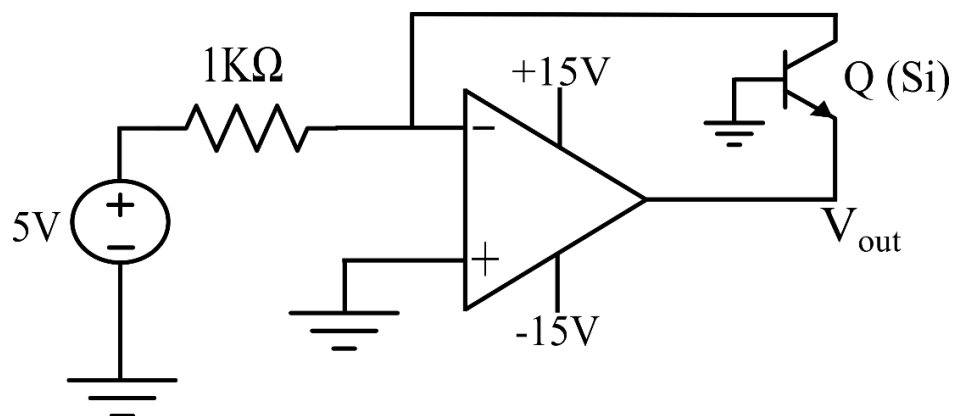2) In the circuit shown in Fig.2 , a Silicon transistor Q is used. Then V_{out} = _____

Fig.2

3) Out of the four characteristics given below, which of the following a well-designed operational amplifier should possess?
P. High common mode rejection ratio
Q. High input impedance
R. Low Power Supply Rejection Ratio
S. Low output impedance

a) P, Q & R
b) Q, R & S
c) P, Q & S
d) R & S

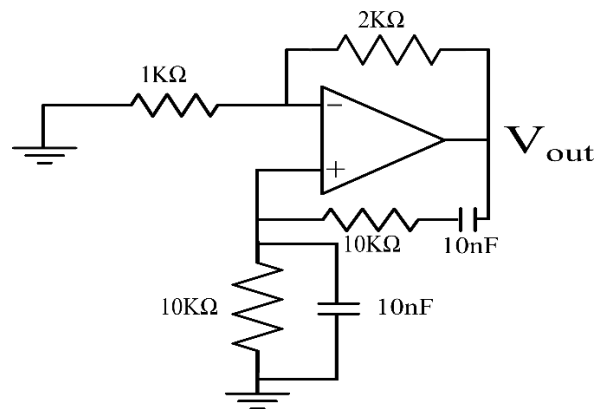4) What will be the waveshape and frequency of V_{out} for the following circuit?

Fig. 3

5) The circuit shown in Fig.4 is of an astable multivibrator using the NE555 timer IC. Derive the ratio $\left(\frac{t_H}{t_L}\right)$ where t_H is time duration for which the output is high and t_L is duration for which the output is low. Also find out the frequency of the output signal?
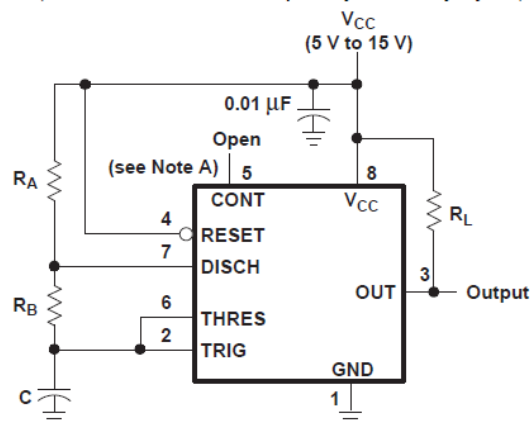

Fig. 4

$$\text{ans}(\frac{t_H}{t_L} = \frac{R_A + R_B}{R_B} \text{ , } f = \frac{1.44}{(R_A + 2R_B)C})$$