Ex: No:3

Name:-Aadi Mahajan

Registration number:-19BEE0032

Aim: **Design of Half wave and full wave rectifier using op-amp**

Apparatus required:

Name	Specialization	Quantity
Resistor	1k	8
Op-amp	LM-741	2
Voltage source	V sin	2
Diode	D1N4001	4

Circuit diagram/ Calculation/equation:

a)Half-wave rectifier

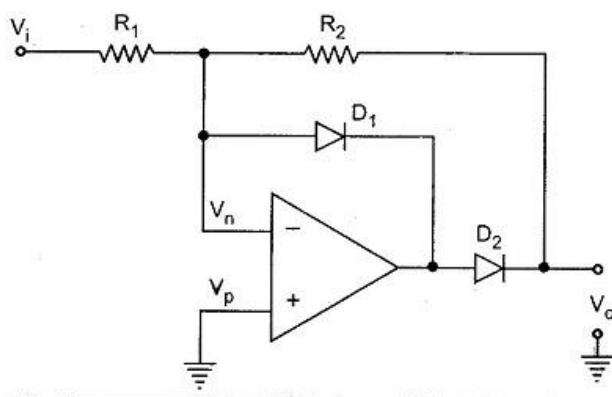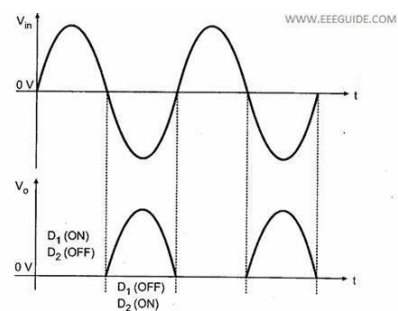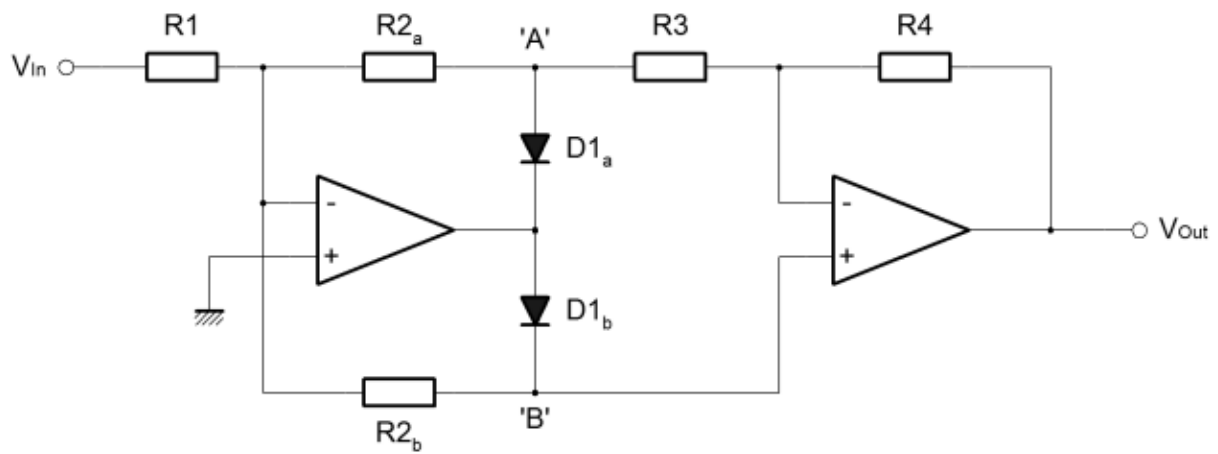Fig. 2.60 Inverting half wave rectifier

Fig. 2.61 Input and output waveforms for inverting half wave rectifier
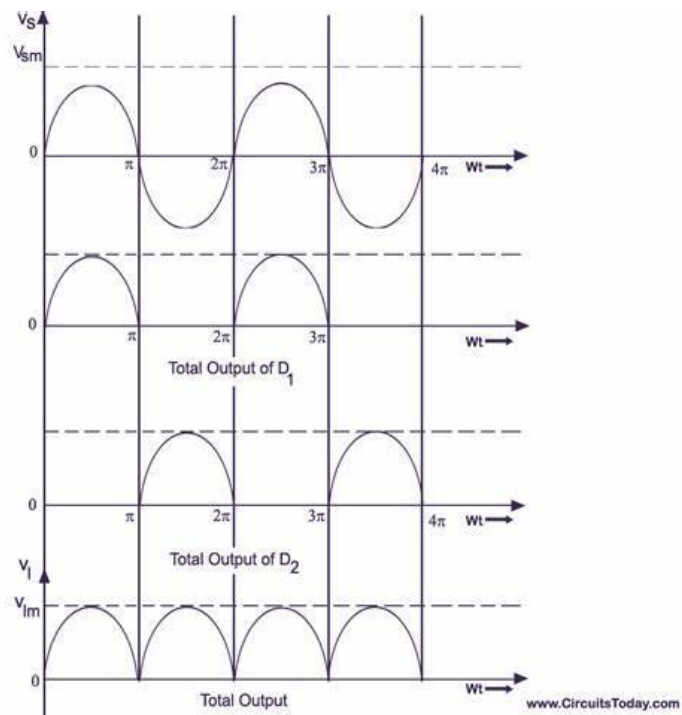
R1=R2=R=1kΩ   **V$_{amp}$=1**   **f=50Hz**

b) full wave rectifier

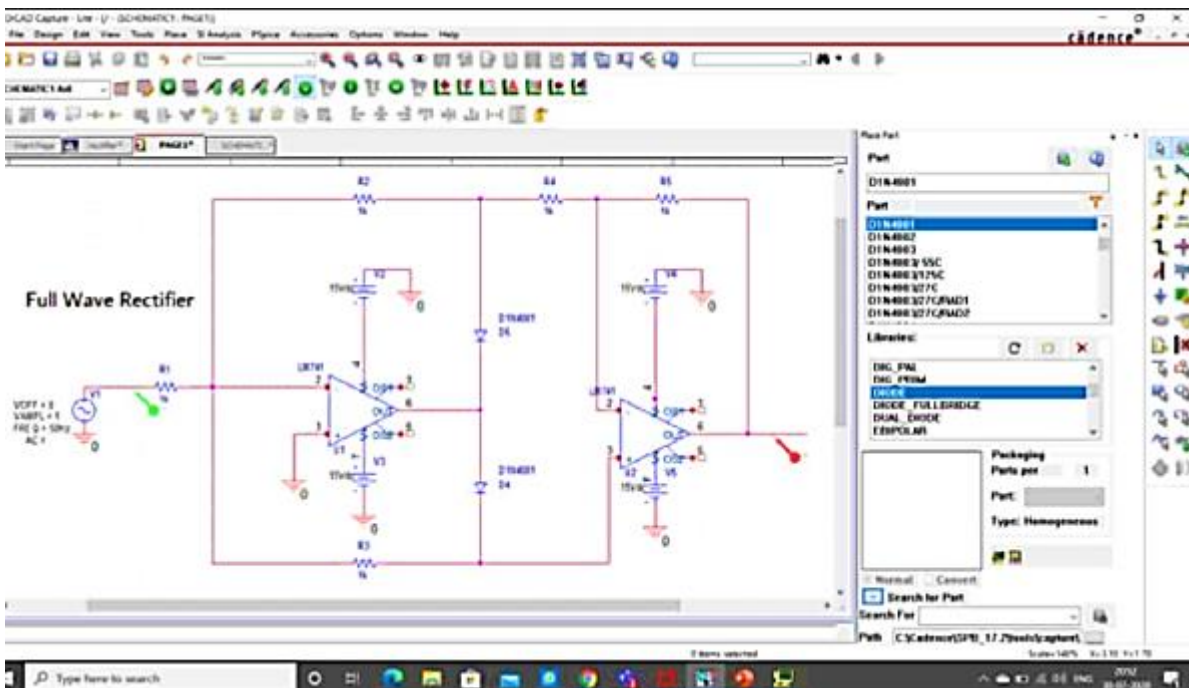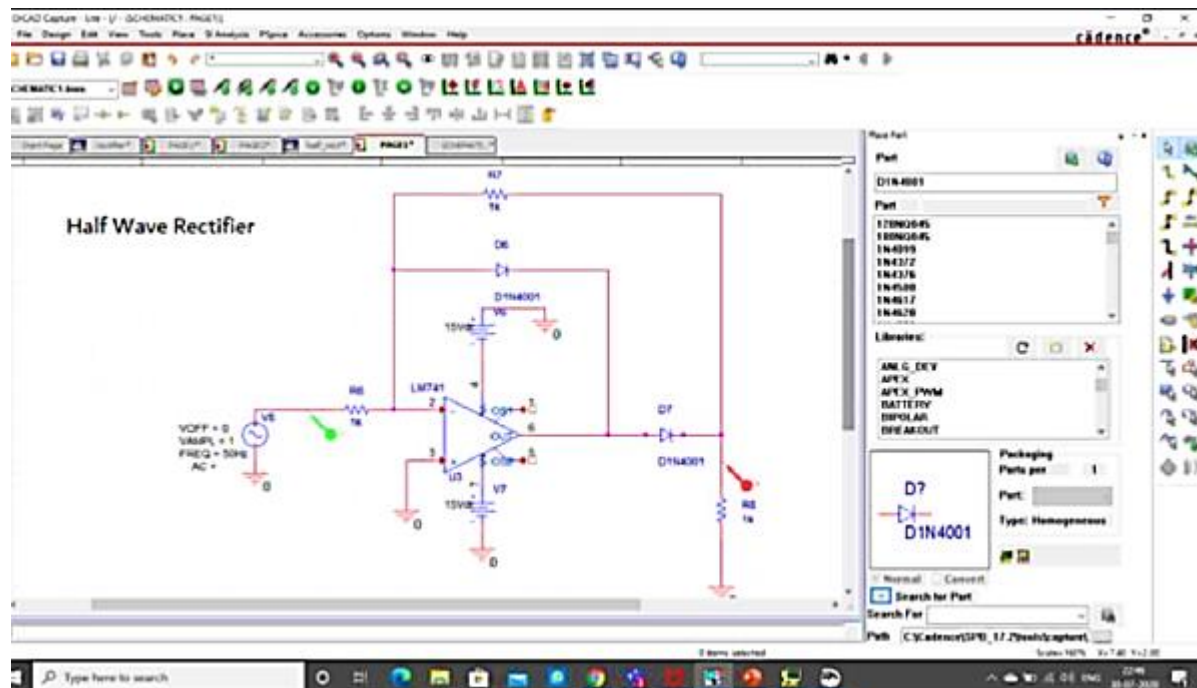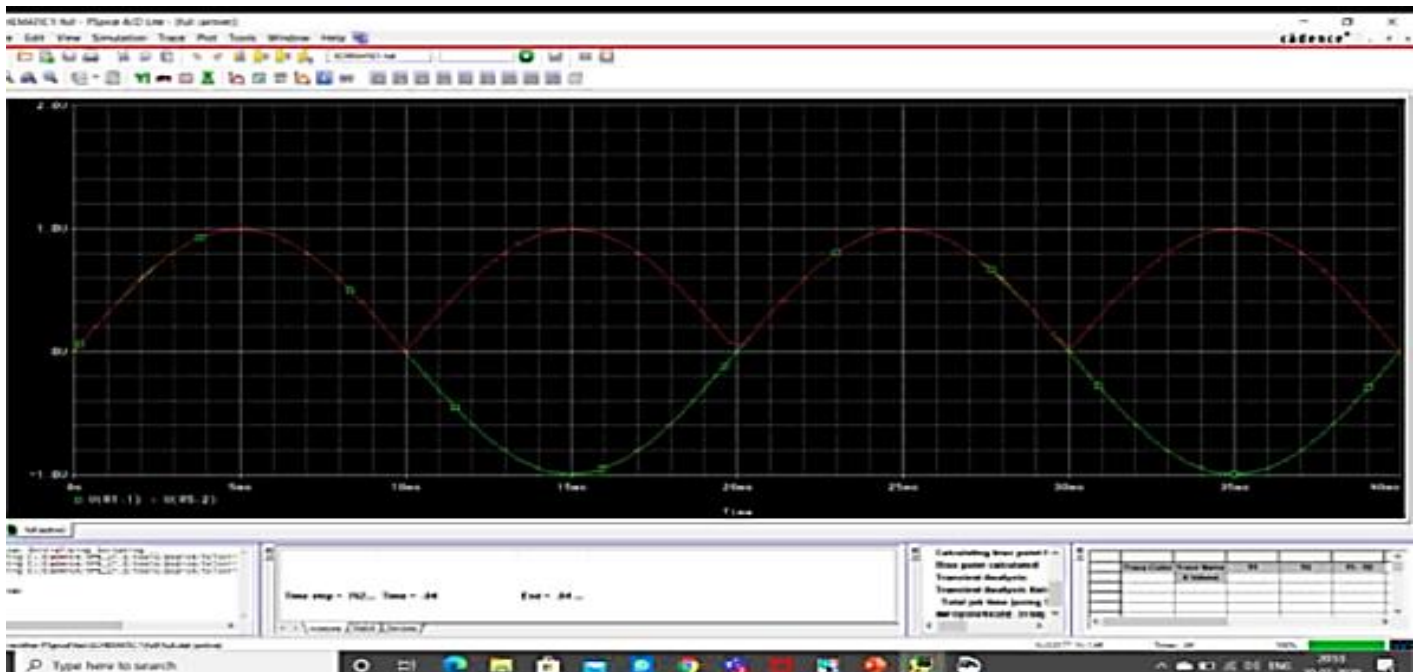**R1=R2$_a$=R2$_b$=R3=R4=R=1kΩ**   **V$_{amp}$=1**   **f=50Hz**

Simulation diagram:

Output graph:

FULL-WAVE RECTIFIER

HALF-WAVE RECTIFER

Result and inference: half wave use one op-amp, while full wave use two op-amps. The problem with using only diode still persists as output is not constant like a dc one but this output can be used for other purposes.