25-01-2019

MECE 347 Resit Exam

Name: Surname: Number: Signature:

Q1) The integrated circuit ICX given below has the following characteristics.



Va>=Vb Vx=2(Vb-Va)

Vb>Va Vx=3(Va-Vb)

Vx saturates at Vcc and -Vcc

For the circuit below where two ICX is used and input is Vin(t)=20 Sin(2πft) where f=0.25 Hertz. R1=1000 Ohm, R2=2000 Ohm, Vcc=12 Volt, -Vcc=-12 Volt



1. Find Vo(t) and I(t) as a function of Vin . **(20 points)**
2. Draw Vin(t), Vo(t) as a function of time. Give the important points in your plots **(25 points)**
3. Draw Vin(t) versus Vo(t). **(25 points)**

Q2) The integrated circuit ICX is given below has the following characteristics.



Vy>=Vx Vo=0.5(VCC+(Vy-Vx))

Vx>Vy Vo=0.5(Vaa+(Vy-Vx))

ICX is used in the circuit below where R=1 Ohm and Vin(t)=12 Sin(2πft) Volt, f=0.25 Hertz



1. Draw Vin(t) and Vout(t) as a function of time ‘t’. **(15 points)**
2. Draw Vout(t) versus Vin(t). **(15 points)**