

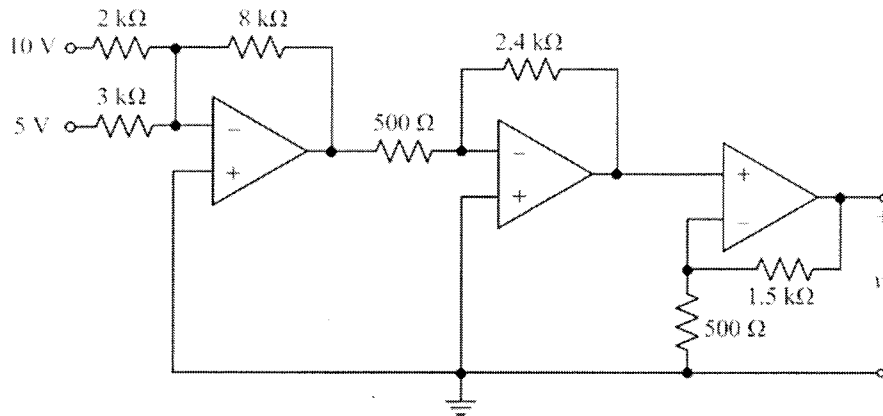
Part C

Answer the Question. Question carries **eight** marks.

(1Qx8M=8)

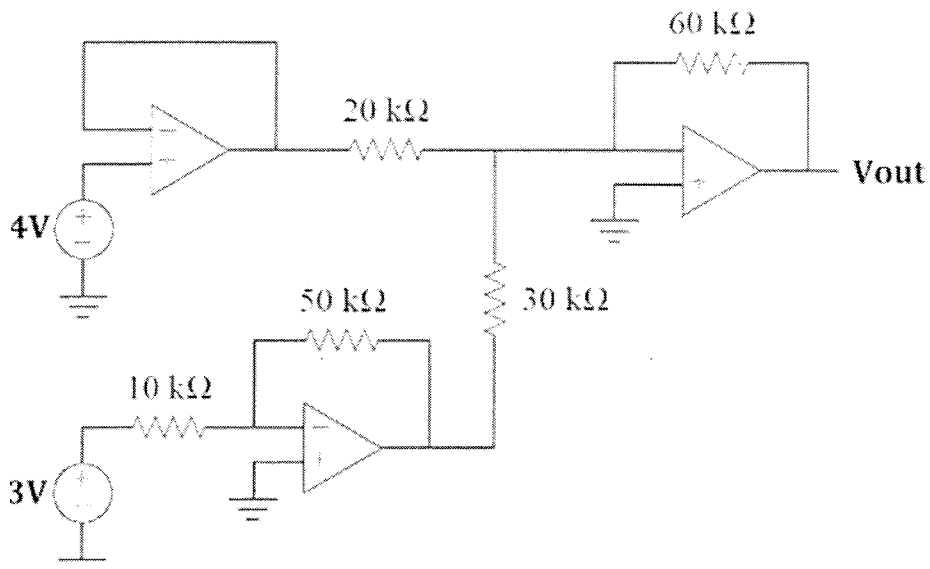
5. Derive the expression for output voltage of the following circuit:

i)



For the above circuit saturation voltages are given as: $\pm 12V$.

ii)



For this above Circuit saturation Voltages are given as: $\pm 15V$.



PRESIDENCY UNIVERSITY
BENGALURU

SCHOOL OF ENGINEERING

END TERM FINAL EXAMINATION

Even Semester: 2018-19

Course Code: ECE 206

Course Name: Linear Integrated Circuits

Program & Sem: B.Tech & IV Sem

Date: 22 May 2019

Time: 3 Hours

Max Marks: 80

Weightage: 40%

Instructions:

- (i) Read the question properly and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and Non-programmable calculators are permitted.

Part A

Answer **all** the Questions. **Each** question carries **two** marks.

(10Qx2M=20M)

1.

- (i) An Opamp said to operate in common-mode configuration when
- a) Input voltage are equal
 - b) Input voltage is equal to the output voltage
 - c) Same voltage is applied to both input terminal of an opamp
 - d) Different voltage is applied to both input and terminal of an opamp

- (ii) The input stage of an op amp is usually a ____
- a) differential amplifier
 - b) class B push pull amplifier
 - c) CE amplifier
 - d) Swamped amplifier

- (iii) An Opamp can amplify
- a) AC signals only
 - b) DC signals only
 - c) both AC and DC signals
 - d) neither AC and DC signals

- (iv) A non-inverting closed loop op-amp circuit generally has a gain factor ____
- a) Less than one
 - b) Greater than one
 - c) Zero
 - d) One

Part C

Answer all the Questions. Each question carries nine marks.

(4Qx9M=36M)

(v) Which factor is responsible for causing slew rate?

- a) Internal capacitor
- b) External resistor
- c) Both internal and external capacitor
- d) None of the mentioned

(vi) An Opamp is a _____

- a) voltage controlled voltage source (VCVS)
- b) current controlled voltage source (CCVS)
- c) voltage controlled current source (VCCS)
- d) current controlled current source (CCCS)

(vii) The output equation of Non-inverting amplifier is given by _____ if $v_{in}=5v$ and $R_f=R_{in}=1k\Omega$ $V_o=$ _____

(viii) Ideal value of CMRR _____ and slew rate _____

(ix) Astable Multivibrator has _____ stable states and monostable Multivibrator has _____ stable states.

(x) Op amp uses _____ feedback and Oscillator uses _____ Feedback.

6. Explain the following terms with respect to op amp 741 also mention the practical

Value. a) CMRR b) Slew rate c) SVRR

7. Design a square wave generator using 555 timer with a period of

(i) $T_{on}=0.6mSec$, $f=1 kHz$

(i) $T_{on}=0.5mSec$, $f=1 kHz$ (assume diode is ideal). Draw the circuit.

8. Explain 3-bit Successive approximation ADC with a circuit diagram. Mention its advantages and disadvantages

9. Explain the block diagram of PLL and define Lock range, capture range and pull in time

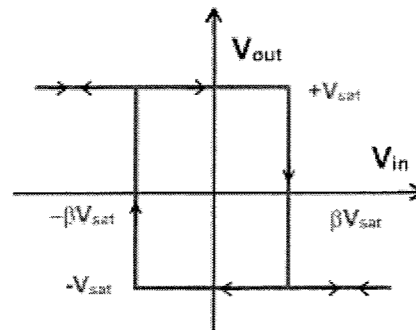
Part B

Answer all the Questions. Each question carries six marks.

(4Qx6M=24M)

2. Explain Inverting summing amplifier with a circuit diagram. Show that how it can be used as a scaling circuit.

3. Identify, draw and explain the circuit with neat waveforms for the given hysteresis, Design



the circuit for the supply voltage $15v$, $V_h=4v$.

4. Explain First order high pass filter with a neat circuit diagram, frequency response and design the same at a cutoff frequency of $1kHz$ and pass band gain of 2.

5. State Barkhausen's criteria. Explain Wein bridge oscillator with a neat diagram.