Jain College, Jayanagar
II PUC Electronics (40) Mock Paper - II

PART A

Answer all of the following: **1x10=10**

1) Why FET is called voltage controlled device?
2) Define Quiescent point.
3) Mention any one non linear application of op-amp.
4) Define skip distance.
5) What is the intermediate frequency of an AM receiver?
6) What is the efficiency of an AM for 100% modulation?
7) Name any one alphanumeric code.
8) What is a sequential logic circuit?
9) What is the meaning of MOV A,R0
10) Write C equivalent expression for Y= $\frac{a^2 - b^2}{a}$

PART B

Answer any FIVE of the following: **2x5=10**

11) Why is the voltage divider bias circuit is preffered in the amplifiers?
12) Write the steps involved in drawing ac equivalent circuit of an amplifier.
13) In an amplifier upper cut-off frequency is 500kz and A=100. Determine upper cutoff frequency when negative feedback of β=0.02 is introduced.
14) Write any two advantages of crystal oscillator.
15) Mention any two characteristics of an ideal op-amp.
16) Write a note on internal memory of 8051 microcontroller.
17) Write the syntax of while() loop statement.
18) Explain the terms cell splitting and frequency reuse in mobile communication.

PART C

Answer any FIVE of the following: **3x5=15**

19) Explain the operation of n-channel JFET.
20) Draw the frequency response of an amplifier with and without negative feedback. Write the expression for voltage gain of an amplifier with negative feedback. Explain the terms.
21) Explain virtual ground in op-amp.
22) With neat block diagram explain the communication system.
23) Explain any three needs for modulation.
24) What is a TRIAC? Draw the characteristics of TRIAC for different gate currents.

25) What is a full adder? Draw the logic diagram of full adder using half adders.

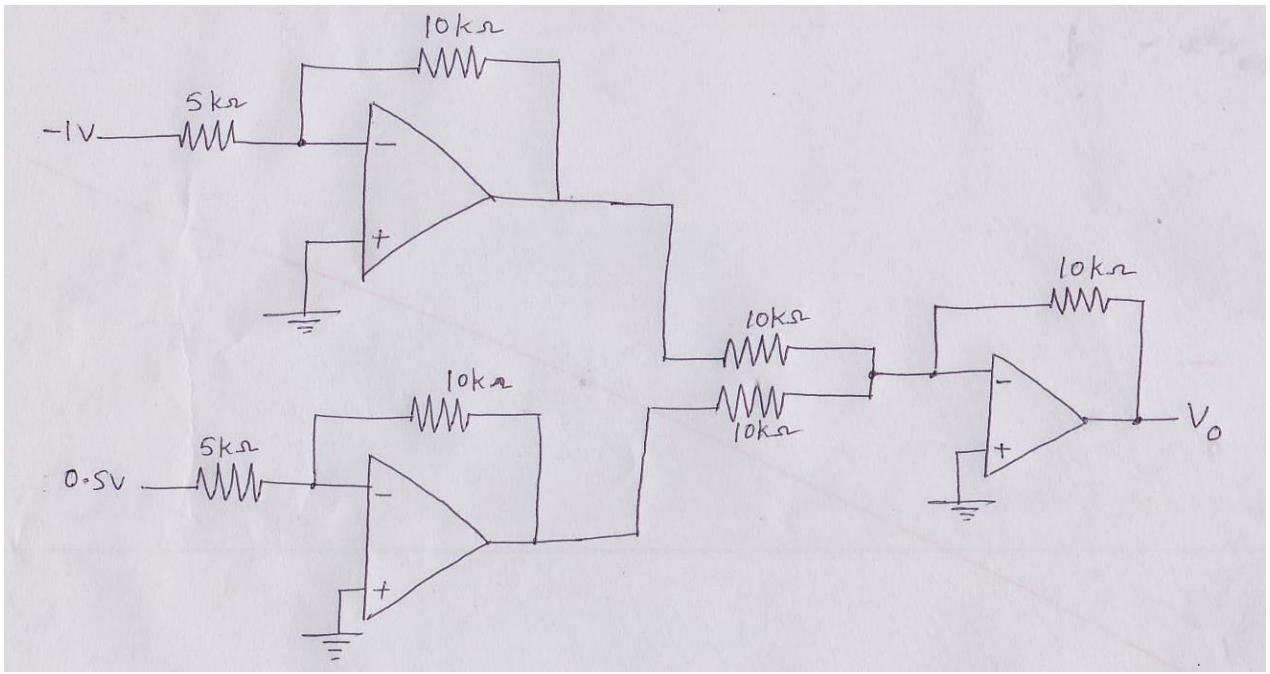
26) Write a short note on Bluetooth technology.

PART D

Answer any THREE of the following: **5x3=15**

27) For the CE amplifier circuit using silicon transistor find i) voltage across 10KΩ resistor ii) I_E iii) r_e' iv) A_V v) A_i . Given β=100 R_1=100KΩ R_2=10KΩ R_C=2.2KΩ R_E=220Ω.

28) Find the output of the following opamp circuit.



29) The time period of weinbridge oscillator is 1mS. Calculate the value of R . Given C=0.01μF.(R1=R2=R and C1=C2=C)

30) An unmodulated carrier with power 7KW is 80% modulated for AM transmission. Calculate the total power transmitted and the power content of each side band.

31) Simplify Y=∑m(0,2,4,6,7,12,15)+ ∑d(8,10,14) using K-map. Draw the logic diagram for the simplified expression using NAND gates.

PART E

Answer any FOUR of the following: **5x4=20**

32) With neat circuit diagram and waveforms explain the working of CB amplifier.

33) Draw the circuit diagram of opamp subtractor. Obtain the expression for output voltage of subtractor.

34) Draw the block diagram of FM transmitter system. Explain the blocks.

35) Draw the logic diagram of 4bit serial in- serial out shift register. Explain the working.

36) Write an 8051 assembly level program to multiply 02h and 06h. Save the result in R0 and R1 registers.

37) Write a c program to accept a character from the keyboard and print YES if character is equal to A. otherwise print NO.