Jain College, Jayanagar
II PUC Mock Paper - I
Subject: Electronics

Duration: 3.15 minutes **Max.Marks: 100**

PART-A

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

1) Why is FET called unipolar device?
2) Define Q point of a transistor.
3) Mention any one application of an open - loop OP-AMP.
4) Define skip zone.
5) What is the maximum deviation allowed in FM?
6) What is an antenna?
7) What is a don't care condition?
8) Define a full adder.
9) What is the capacity of internal ROM of 8051 microcontroller?
10) What is the operation performed by ! in c?

PART B

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

11) What are the advantages of voltage divider bias circuit over other types of biasing methods?
12) Write any two characteristics of CB amplifier.
13) An amplifier has Z_o=5KΩ, voltage gain A=100. If a negative feedback of β=0.02 is applied to it, what shall be the output impedance of the feedback amplifier?
14) Draw the circuit diagram of first order high pass filter.
15) Mention any two types of RC oscillators.
16) Explain the importance of i) accumulator ii) program counter in microcontroller.
17) Write the syntax of switch statement in c programming.
18) What is ISP? Mention its role in computer networking.

PART C

Answer any FIVE of the following.

19) Draw the drain characteristics of JFET. Explain different regions of drain characteristics.
20) Relate the bandwidth of an amplifier with and without feedback. Comment on the gain bandwidth product of an amplifier.
21) With necessary diagram explain virtual ground in Op-AMP.
22) With block diagram explain a wireless communication system.

23) Sketch modulating signal, carrier wave and AM wave.

24) Determine V_{dc} and I_{dc} of SCR FWR. Given firing angle is 60· , peak voltage of ac input to the rectifier is 325.2v and a load of 25Ω is connected.

25) Obtain the standard POS of Y=(A+B).C

26) List out any three additional features of 3G and 4G cell phone system.

PART D

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

27) A CE amplifier using germanium transistor shown below , calculate

i) Voltage drop across R2

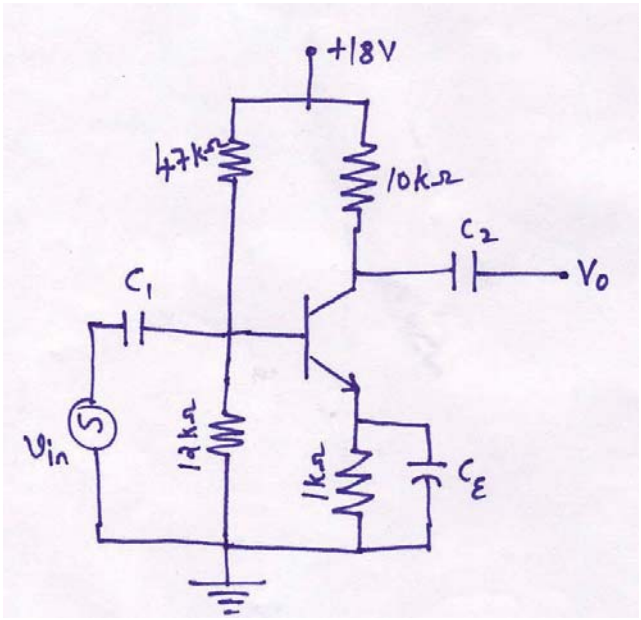
ii) I_E

iii) r_e^1

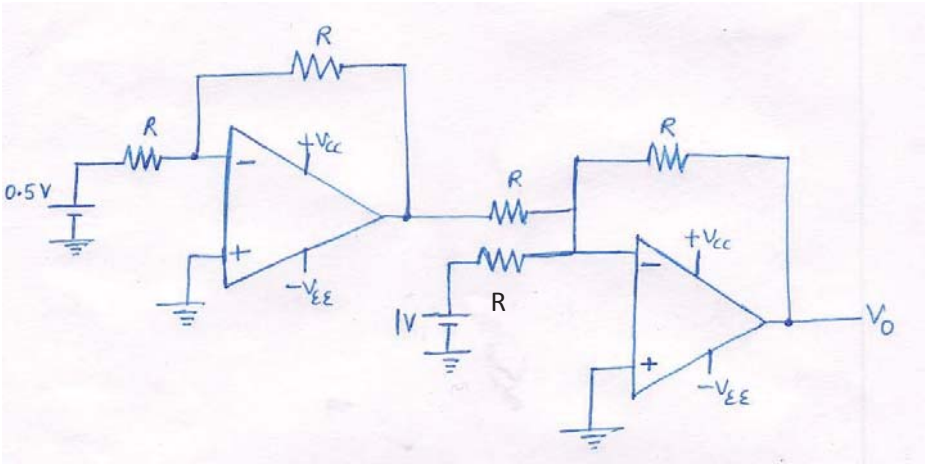
iv) Av

v) Ai

given, β=150.



28) Calculate the output voltage of the following OPAMP circuit.



29) In a colpitts oscillator, frequency of oscillation is 18MHz, Calculate the value of L to be used if C_1 = 100pF and C_2 = 10pF.

Calculate the frequency of oscillation if C_2 is replaced by another capacitor of C = 50pF.

30) A 91.1MHz high frequency signal deviates to 91.16MHz while transmitting a signal of frequency 4KHz. Calculate the carrier swing, band width, percentage of modulation odulation in FM.

31) Simplify Y=∑m (4, 5, 7, 9, 11, 12, 13, 15) + ∑d(1, 3, 8) using K-Map. Draw the logic diagram for the simplified expression using only NAND gates.

PART E

Answer any four of the following. **(5X4 = 20)**

32) With neat circuit diagram, explain the working and frequency response of direct coupled CE amplifier.

33) Derive an expression for the output of OPAMP subtractor

34) With neat block diagram, explain the AM transmitter system.

35) What is an Universal gate? Realize NOT, AND, OR and XNOR gates using NOR gate.

36) Write 8051 ALP to subtract 1Ah from 35h. Save the result in the RAM location 30h. Verify the content of 30h after executing the program.

37) Write a C program to check whether entered integer is even or odd. Print relevant statements.

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