Jain College, Jayanagar
II PUC Mock I Paper Jan - 2019
Subject: ELECTRONICS (40)

Duration: 3 hrs 15min **Max. Marks: 70**

PART A

Answer ALL questions: **1 x 10 = 10**

1. Define pinch-off voltage.
2. Define quiescent point.
3. Name any one material which exhibits piezo electric effect.
4. What is fading?
5. How many side bands are present in AM wave?
6. What is frequency modulation?
7. Define a QUAD in a K-map.
8. Convert 1111(2) to gray code.
9. What does a 'jump' instruction do in microcontroller programming?
10. What is the value of 17%-2 in C programming?

PART B

Answer any FIVE questions: **2 x 5 = 10**

11. What is a heat sink? Mention its use.
12. Draw the frequency response of a CE amplifier.
13. Write any four characteristic features of voltage series negative feedback amplifier.
14. Name the four different modes of a differential amplifier.
15. Distinguish between damped and undamped oscillations.
16. Mention different opcodes used in 8051.
17. What is the use of main ( ) function in C?
18. Expand AMPS and TDMA.

PART C

Answer any FIVE questions: **3 x 5 = 15**

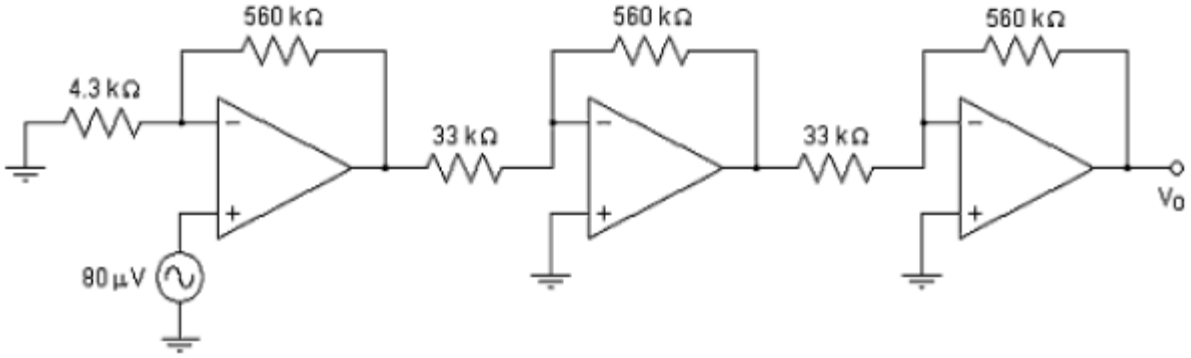
19. Give a comparison between FET and BJT.
20. Draw the frequency response of an amplifier with and without feedback and comment on the gain-bandwidth product of the amplifier.
21. Explain in brief the ground wave propagation.
22. Show that the total power in an AM wave is 3/2 times the carrier power.
23. Explain the terms sensitivity, selectivity and fidelity with respect to a radio receiver.
24. Explain briefly the working of non-punch through diode with its electric field profile diagram.
25. Write the classification of RADAR systems.
26. Draw the logic diagram of PISO register. Explain the $SHIFT/\overline{LOAD}$ action in it.

PART D

Answer any THREE questions: **5 x 3 = 15**

27. Calculate the voltage gain, input impedance and output impedance of a CE amplifier with IE=1.3mA, β=100, RC=10kΩ, RL=10kΩ.

28. Calculate the output voltage Vo.



29. A Hartley oscillator circuit is to generate a frequency of 1200 kHz. If the capacitor in the feedback network has a value of 220 pF and one of the inductors value is 20 μH, calculate the value of the other inductor.

30. Simplify using K-map Y(A,B,C,D)=Σm(2,4,5,9,10,12,14,15)+ Σd(0,6,8,13). Realize the simplified expression using NAND gates only.

31. Write a program to multiply two 8 bit numbers 06H and 09H at memory locations 40H and 41H respectively. Store the result at memory locations 42H (Lower Byte) and 43H (Higher Byte).

PART E

Answer any FOUR questions: **5 x 4 = 20**

32. Give a comparison of different power amplifiers.

33. With a relevant diagram, derive an expression for the output voltage of an op-amp logarithmic amplifier.

34. Write the block diagram of digital communication and explain the function of each block.

35. What is a full adder? Explain its working with respect to three input X-OR gate and basic gates with the help of truth table and Boolean expression.

36. With circuit diagram explain the working of single phase SCR half wave rectifier with RC triggering.

37. What is a variable in C language? Mention the rules for constructing variable names in C.

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