



JAIN COLLEGE

463/465, 18th Main Road, SS Royal, 80 Feet Road, Rajarajeshwari Nagar,
Bangalore - 560 098

Date:

SUBJECT: ELECTRONICS

**II PUC
I Mock**

Timings Allowed: 3 Hrs.

Total Marks:70

- Note:** i. Question paper contains **five** parts.
ii. Part **A** is compulsory. Part **D** contains problems
iii. Part **E** contains essay type questions.
iv. Explanation **without** circuit diagram, wherever necessary, does not **carry** mark

PART - A

Answer ALL questions. Each question carries ONE mark.

1X10=10

1. Define Quiscent point.
2. Which amplifier is used as DC level shifter in op-amp?
3. Determine the modulation index m_a of AM. $V_{max}=10V$ and $V_{min}=6V$.
4. Mention the frequency range of FM radio receiver.
5. What is Drift region?
6. Mention any one weighted code.
7. Which is the line used to transfer data in and out of a PISO shift register?
8. Which is the largest hex value that can be moved into an 8-bit register?
9. If $a=5$, $b=10$, what is the content of 'a' after the execution of $a+=b$; in C programming?
10. Why are the cells in hexagon shape during cell splitting?

PART - B

Answer any FIVE questions. Each question carries TWO marks.

2X5=10

11. Write the function of drain and gate.
12. What is the significance of a load line?
13. Why is positive feedback seldom used in amplifier?
14. Compare RC and LC oscillators.
15. Distinguish between high level and low level modulation.
16. Mention advantages of Quadrature Receiver.
17. What is the use of break statement? Write its syntax.
18. What is ISP? Mention its role in computer net working.

PART - C

Answer FIVE questions. Each question carries THREE marks.

3X5 = 15

19. Write a note on leakage current in transistor.
20. Draw the block diagrams of any three types of negative feedback connections.
21. What is line of sight? Differentiate Radio horizon and Optical horizon.
22. Obtain an expression for anode current I_A when $I_G=0$.
23. Explain the working of DC to AC Inverter circuit.
24. Convert $A + BC + \overline{AB}$ into its Canonical SOP and write the expression in min term designation.
25. Name the addressing mode of a following instructions
(i) MOV A, R₀
(ii) MOV R₀, 40H
(iii) MOV A, @R₀

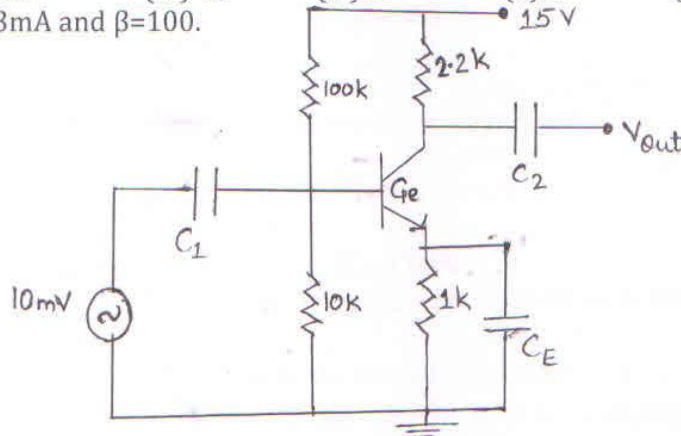
26. Explain the format of URL.

PART - D

Answer **THREE** questions. Each question carries **FIVE** marks.

5X3 = 15

27. For the CE amplifier circuit using Germanium transistor given below, find
 (i) r_e^{-1} (ii) A_V (iii) V_0 (iv) A_i (v) A_P (vi) G_P
 Given $I_E = 1.043\text{mA}$ and $\beta = 100$.



28. Design an op-amp the circuit to realize the output, $V_0 = 3V_1 - 2V_2 + V_3$, Assume $R_F = 10\text{k}\Omega$.

29. A Hartley oscillator at 15kHz. If the capacitor in tank circuit has a value of $0.01\mu\text{F}$ and one of the inductors is 1mH. Calculate the value of the other inductor.

30. A frequency modulated signal is given by $10\sin(6 \times 10^8 t + 5\sin 1250 t)$. Determine

- (i) Carrier frequency
- (ii) Modulation frequency
- (iii) Modulation index
- (iv) Maximum deviation
- (v) Deviation ratio
- (vi) Power dissipated in a 5Ω resistor

31. Simplify the Boolean expression $Y(A,B,C,D) = \sum m(0,2,6,8,10,12,14) + \sum d(4,9,13)$ using K-map and then draw the logic circuit using only NAND gates.

PART - E

Answer **FOUR** questions. Each question carries **FIVE** marks.

5X4 = 20

32. Draw the circuit diagram and explain the working of CC amplifier also mention any two applications.

33. (a) Derive an expression for the output voltage of a non-inverting amplifier.

(b) The gain of a buffer amplifier is unity. Explain.

(3+2=5)

34. What is an Antenna? Briefly explain any four types of antenna.

35. (a) What is the Race around condition? How is it eliminated?

(a) Write the truth table, timing diagram and logic diagram of SISO register.

(2+3=5)

36. Write an assembly language program to move 56H into register A, 4EH into register R0, then add the two data's and save the result in register R1.

37. What is Debugging? Explain the different types of error that occur in C programming language.
