SRI BHAGAWAN MAHAVEER JAIN COLLEGE
Vishweshwarapuram, Bangalore.

Mock Exam 2 - Feb. 2016

Course:	II PUC
Subject:	Electronics
Max. Marks:	70
Duration:	3:15 Hrs

PART - A

I. **Answer the questions.**   10 x 1 = 10

1. Write the relation between JFET parameters.

2. Name β independent transistor biasing circuit.

3. Define CMRR.

4. Define Skip distance.

5. Mention the frequency range of FM radio receiver.

6. Determine modulation index m_a of AM. Given V_{max} = 10V   & V_{min} = 6V.

7. Define max term.

8. Write the logic circuit for the expression Y = A.B using NOR gates.

9. What is the meaning of the instruction, MOV A, R_o?

10. Expand ASCII.

PART - B

II. **Answer any five questions.**   5 x 2 = 10

11. Mention the biasing conditions for a transistor to operate in active region.

12. Why do we preffer to express the gain in decibels?

13. An amplifier having of gain 500 reduce to 100 after feedback. Calculate the feedback fraction.

14. Mention the four modes of differential amplifier.

15. Draw the circuit diagram of RC phaseshift oscillator.

16. Write a 'C' program to check whether two integers X & Y are equal.

17. Write any two advantages of digital cell phone system.

18. Write features of 8051 micro controller.

PART - C

III. **Answer any five questions.**   5 x 3 = 15

19. Explain the operation of n-channel JFET.

20. Explain the terms leakage current, thermal runaway and heat sink in transistor.

21. Explain the working of first order low pass filter with a neat circuit diagram

22. What are the different types of wave propagation.

23. What are the characteristics of good receiver?

24. Explain punch through type power diodes.

25. Distinguish between combinational and sequential logic circuits.

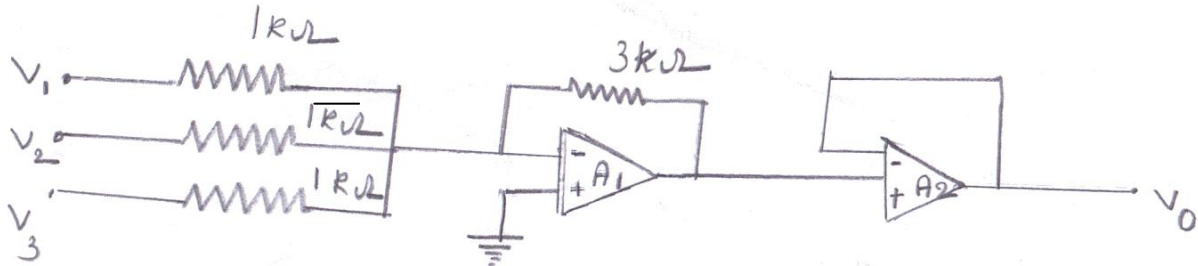26. Write any three uses of fiber optical communication.

PART - D

VI.   Answer any three questions.   **3 x 5 = 5**

27.   For a single stage ce amplifier R_1=47KΩ, R_2=10kΩ, R_c = 3.9 kΩ, R_E=1kΩ, R_L = 5kΩ, V_{cc}=10V, β =100.

$r_e^1 = \dfrac{26mv}{I_E}$ find i) r_{in} ii) r_L iii) A_v iv) A_p.

28.   Determine the output voltage V_0 for the following circuit.

29.   Find the frequencies of LC tank circuit

a) $L = 1\mu H, \quad C = 0.47\mu F$

b) $L = 10mH, \ C = 100PF$

30.   For the FM wave V_{FM} =20 sin(10^8t+4 sin10^5t).

Find (i) Carrier frequency (ii) modulating frequency (iii) modulating Index and

(iv) Frequency deviation.

31.   Simplify the Boolean expression $y = \sum_m (4,5,7,9,11,12,13,15) + \sum_d (1,3,8)$

using K-map. Draw the NAND gate equivalent circuit to realize the simplified expression.

PART - E

VI.   Answer any four questions.   **4 x 5 = 20**

32.   With circuit diagram, explain the working of CC amplifier.

33.   Derive an expression for the output Voltage of a summing amplifier?

34.   Derive an expression for the output Voltage of amplitude modulated wave.

35.   Draw the logic diagram of 4 bit up counter. Write its truth table and explain its working.

36.   Write note on logical instructions of microcontroller.

37.   What is an identifier? Explain the rules of declaring the identifier.

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