



**SRI BHAGAWAN MAHAVEER JAIN COLLEGE**  
Vishweshwarapuram, Bangalore 560004  
**Mock Examination Question Paper-1 (January 2019)**

<b>Course:</b>	II PUC
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<b>Subject:</b>	Electronics
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<b>Max. Marks:</b>	70
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<b>Duration:</b>	3:15 hrs.
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**Part-A**

**1. Answer ALL the questions.**

**10x1=10**

1. Is FET a current controlled device or a voltage controlled device?
2. Why CC amplifier is called emitter follower?
3. What type of feedback is used in Schmitt trigger?
4. What is over modulation in AM?
5. Expand SSB-TC.
6. Draw the circuit symbol of IGBT.
7. How many variables are eliminated by a quad?
8. How many 8-bit ports are present in 8051 microcontroller?
9. What is the value of  $17\% - 2$  in C-programming?
10. Which are the materials are commonly used for fiber optic cables?

**Part-B**

**II. Answer any FIVE questions.**

**5x2=10**

11. What is a heat sink? Mention its use.
12. Mention any two characteristics of CB amplifier.
13. An amplifier has a gain of 600 with feedback ratio of 5%. Calculate the gain and output impedance with negative feedback. Given output impedance without feedback is  $200\Omega$ .
14. Name the four different modes of a differential amplifier.
15. Name the oscillator which uses capacitive feedback and write the expression for the oscillating frequency.
16. Mention two difference between micro processor and microcontroller.
17. What is the use of main( ) function in C-Programming?
18. What is RADAR? Mention one application of RADAR.

**Part-C**

**III. Answer any FIVE questions.**

**5x3=15**

19. Distinguish between FET and BJT.
20. Draw the block diagram for the four types of negative feedback.
21. Explain briefly the space wave propagation.
22. Distinguish between AM and FM.
23. Show that total power in AM is  $3/2$  times of carrier power.
24. At what firing angle does SCR of FWR must be triggered to supply  $V_{dc}$  of 60V to a load. Given  $V_m=155.5V$ .
25. Draw with a logic circuit and truth table, explain the working of D-flipflop.
26. Explain the principle of operation of Bluetooth.

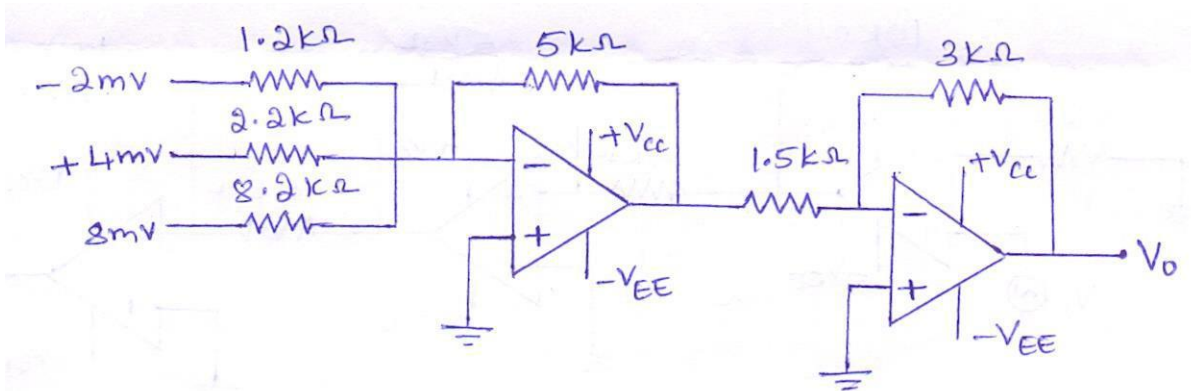
**Part-D**

**IV. Answer any THREE questions.**

**3x5=15**

27. For the CE amplifier circuit using Si transistor, find (a)  $I_E$  (b)  $r_e$  (c)  $Z_{in(stage)}$  (d)  $A_v$ . Given  $R_1=33k\Omega$ ,  $R_2=9k\Omega$ ,  $R_c=2.2k\Omega$ ,  $R_E=1k\Omega$ ,  $V_{cc}=12V$ ,  $\beta=100$ .

28. Calculate the output voltage for the circuit shown below.



29. (a) A transistor colpitt's oscillator has  $L=4\text{mH}$ ,  $C_1=10\text{nF}$  and  $C_2= 1\text{nF}$ . Determine the frequency of oscillation. **(3)**  
 (b) What should be the value of capacitor required for a phase shift oscillator to produce a frequency of 338HZ, if the resistance used is  $220\Omega$ ? **(2)**
30. Simplify the expression using k-map  $y=\sum m(0,1,3,4,5,6,7,12,13,14) +d (2,15)$  and draw the logic circuit using NOR gates only.
31. Write a program to multiply two 8 bit numbers 06H and 0CH at memory locations 40H and 41H respectively. Store the result at memory location 42H (lower byte) and 43H (Higher Byte).

**V. Answer any FOUR questions.**

**4x5=20**

32. Explain the working of CE amplifier with a neat circuit diagram and waveforms.
33. What is an op-amp Summing amplifier? Draw the circuit diagram of a three input inverting op-amp adder and derive an expression for its output voltage.
34. What is an Antenna? Briefly explain any four types of antennas.
35. What is a full adder? Draw the logic diagram of a full adder using X-OR gate and basic gates. Write the expression for sum and carry.
36. With a neat circuit diagram and waveform, explain the working of single phase SCR half wave rectifier using RC triggering.
37. Explain the features of C-programming language.

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