



JAIN COLLEGE

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

Date:

SUBJECT: ELECTRONICS

**II PUC
II 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. Mention any one factor on which stabilization depends.
2. How many op-amps are present in LM324.
3. What is the wavelength of audio signal of frequency 20kHz?
4. Define Image frequency.
5. What is pulse transformer?
6. How many zone bits are present in EBCDIC?
7. How many variables does an Octet eliminates.
8. Why is the assembly language programming called low level language?
9. What are key words?
10. Expand CDMA.

PART - B

Answer any FIVE questions. Each question carries TWO marks.

2X5=10

11. Explain what happens when pn-junction when gate is reverse biased.
12. Mention any two biasing circuits.
13. An amplifier has $Z_0=10k\Omega$, voltage gain $A=150$ and $\beta=0.01$. Find the output impedance of the feedback amplifier.
14. Distinguish between damped and undamped oscillations.
15. What are the disadvantages of single side band transmission?
16. What is the function of DC chopper and draw its symbol.
17. Briefly explain the structure of assembly language.
18. Explain call hand-off and frequency re-use used in cell phone system.

PART - C

Answer FIVE questions. Each question carries THREE marks.

3X5 = 15

19. Derive the equation to determine the co-ordinates of Q-point in the voltage divider bias.
20. Compare input and output impedance characteristics of four types of feedback connections.
21. Mention different layers of Ionosphere with their approximate height from the earth.
22. Explain p+n junction under thermal equilibrium and draw the V-I characteristics of a forward biased power diode.
23. Determine V_{dc} and I_{dc} of SCR FWR. Given firing angle is 30° and rms voltage of ac input to the rectifier is 30V and load is 12Ω .
24. With circuit diagram, explain the working of 4-bit synchronous up-counter and draw the timing diagram.

25. Write a C program to convert a given number of days into months and days.

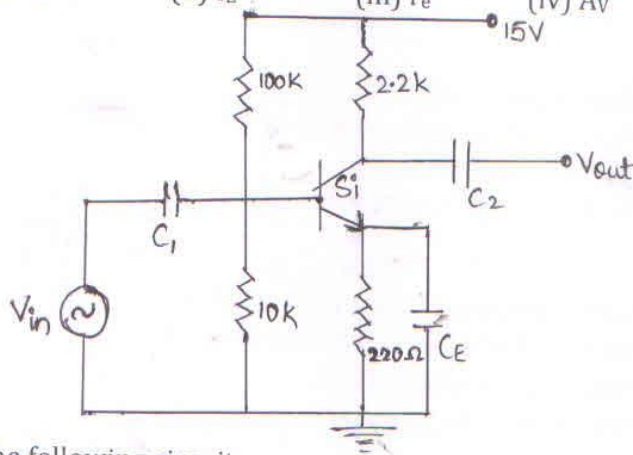
26. Draw the labeled diagram of a Bluetooth system.

PART - D

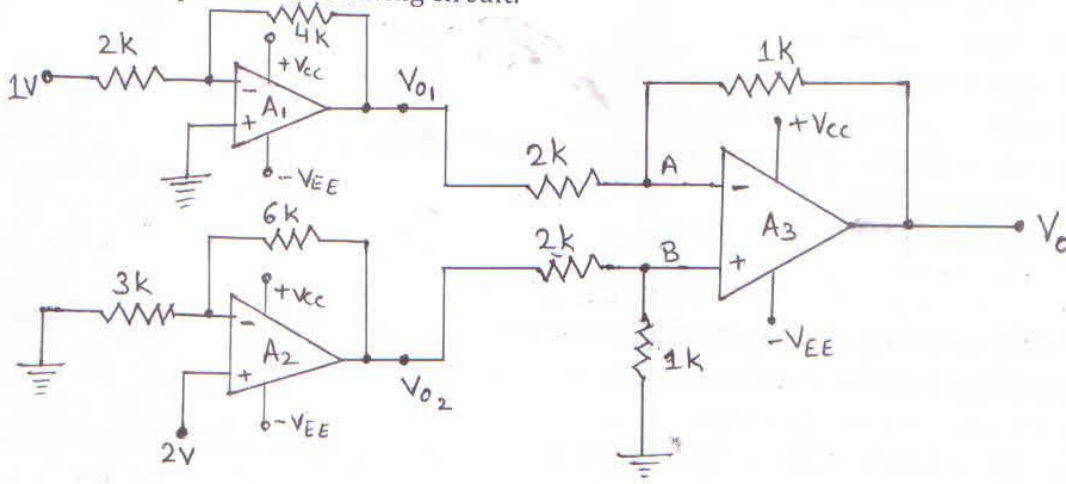
Answer **THREE** questions. Each question carries **FIVE** marks.

5X3 = 15

27. For the CE amplifier circuit using Silicon transistor given below, find
 (i) voltage across 10kΩ (ii) I_E (iii) r_{e1} (iv) A_v (v) A_i
 Given $\beta=100$.



28. Find the output of the following circuit:



29. A phase shift oscillator uses resistor $R=220\Omega$. What should be the capacitance values of the capacitors required for a phase shift oscillator of frequency (a) 120Hz, and (b) 1kHz.
30. A carrier wave of frequency 10MHz and peak voltage of 14V is amplitude modulated by a sinusoidal wave of 5kHz and amplitude 6V. Write the equation of the AM wave. What is the bandwidth of the modulated signal?
31. A Simplify the Boolean expression $\bar{Y}(A,B,C,D)=\Sigma m(1,3,5,8,9,11,12)+\Sigma d(0,7,14)$ using K-map.

PART - E

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

5X4 = 20

32. With input and output waveforms, explain class-A, class-B, class-c power amplifier.
33. With the block diagram and waveform, explain the working of Analog to Digital Converter.
34. Derive the current and power relations for AM in terms of modulation index.
35. What is 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. Draw and label the pin out diagram of 8051 microcontroller.
37. What is identifier? Explain rules of declaring the identifier.
