JAIN COLLEGE

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SUBJECT: Electronics

II PUC
MOCK PAPER - II (2018-19)

Total Marks: 70

PART- A

I.ANSWER ALL THE QUESTIONS: 01X 10=10

1. Define stabilization of a transistor.
2. What is a logarithmic amplifier?
3. What is over modulation?
4. State Carson's rule of FM bandwidth.
5. Write an expression for the voltage drop across forward conducting Power diode.
6. Mention any one non weighted code?
7. What is a quad?
8. How many interrupts are there in 8051 microcontroller?
9. What is the use of conio.h?
10. Mention the short wave microwave frequency band of bluetooth.

PART- B

II ANSWER ANY FIVE QUESTIONS 05 X 2=10

11. Explain what happens to the p-n junction when the gate is reverse biased.
12. What are the disadvantages of direct coupled amplifier?
13. Why is positive feedback seldom used in amplifier?
14. Mention the limitation of LC and RC oscillator.
15. Distinguish between high level and low level modulation.
16. What are the magnitudes of impurity atom densities in 2 heavily doped layers of power diode?
17. What is the function of register PC?
18. Mention the important techniques used for Bluetooth Operator.

PART- C

III ANSWER ANY FIVE QUESTIONS 05 X 3=15

19. Derive the equation to determine the coordinates of Q- point in the voltage divider bias circuit.
20. Draw the block diagram of any 3 types of negative feedback connections.
21. Write a note D layer, E layer and F layer.
22. Draw the circuit diagram of chopper using MOSFET. Draw the gate signal and output load voltage waveforms of DC chopper.
23. Determine the V_{DC} and I_{DC} of SCR HWR. Given firing angle is 90^o and peak voltage of ac input to the rectifier is 325.2 V and load is 10Ω.
24. What is meant by redundant group? Distinguish between SR and JK flip flop. .
25. Name the addressing modes of following instructions.
    a) MOV A,R0
    b) MOV R0,40H
    c) MOV A,@R0
26. Write any three uses of satellites.

PART- D

IV ANSWER ANY THREE QUESTIONS **03 X 05=15**

27. Find the input resistance and voltage gain of the CE transistor amplifier for the data given below: R_1 =47kΩ, R_2 = 12kΩ, R_C= 3.3kΩ, R_E = 1kΩ. R_L= 10kΩ, V_{CC} = 18V, β = 100, V_{BE} = 0.3V and r_e^I= 52mV/I_E.
28. Design an OP-AMP circuit to realize the output, V_O= $3V_1$- $2V_2$ + V_3. Assume R_f = 10kΩ.
29. A phase shift oscillator uses resistor R=220Ω. What should be the capacitance values of the capacitors required for a phase shift oscillator of frequency a) 120Hz, and b) 1kHz.
30. When the modulation percentage is 75% an AM transmitter has certain carrier of 12kW power, What would be the power carried by single side band?
31. Simplify the Boolean function Y= f{A,B,C}= ∑m(0,1,4,13,15) + ∑d(2,5,7) using k-map. Draw the logic circuit using only basic gates to realize the expression.

PART – E

V ANSWER ANY FOUR QUESTIONS **04 X 05= 20**

32. Explain the working of 2 stage RC coupled amplifier.
33. Derive an expression for the output of Anti-logarithmic amplifier using OP-AMP.
34. What is the need for modulation? Explain. Draw the block diagram of FM transmitter.
35. Explain the working of JK flip flop[with logic circuit and truth table. Draw its timing diagram.
36. Write an assembly language program to add two numbers 1FH and B4H and store result in R7. Verify the result by binary addition.
37. Explain the structure of C programming language.

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