JAIN COLLEGE

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Bangalore - 560 098

SUBJECT: Electronics
II PUC
II MOCK 2019-20

Timings Allowed: 3Hr 15 Minutes. ***Total Marks: 70***

NOTE:

i)Questions paper contains four parts A,B,C and D.
ii) Part A has no choice.
iii) Part D has two parts
Part I is from problems.
Part II is of Essay type questions.
iv) Circuit diagram/waveforms/Timing diagram/truth tables are to be drawn wherever necessary.
v) Problems without necessary formula carry no mark.

PART- A

I. ANSWER ALL THE QUESTIONS: **10 X 1=10**

1. What is a pre-amplifier?
2. Which circuit is used as DC level shifter?
3. What is multiplexing in modulation?
4. Define heterodyning.
5. What is the duty ratio of a chopper?
6. What is a full adder?
7. What is a don't care condition?
8. How many interrupt sources are present in 8051 microcontroller?
9. What is the use of conio.h?
10. What is a transponder?

PART- B

II. ANSWER ANY FIVE QUESTIONS **5 X 2=10**

11. Explain the formation of depletion region in JFET.
12. Distinguish between compound amplifier and cascaded amplifier.
13. Draw the block diagrams of voltage shunt and current series of negative feedback.
14. Explain the principle of lead and lag network of Wein bridge oscillator
15. Draw the block diagram of digital communication system.
16. Draw the V-I characteristics of power diode under forward biased condition for two temperatures.
17. Write the syntax for "For" statement.
18. What is ISP? Mention its role in computer networking.

PART- C

III. ANSWER ANY FIVE QUESTIONS **5 X 3=15**

19. Write a note on the selection of Q point.
20. Draw the frequency response of an amplifier with and without feedback.
21. Explain different types of wave transmission.
22. Show that the ohmic drop makes forward VI characteristics of a power diode is more linear.
23. Determine V_{dc} and I_{dc} of SCR FWR. Given firing angle is 60^{o} and peak value of voltage of ac input to the rectifier is 325.2V and a rheostat load of 25Ω is connected.

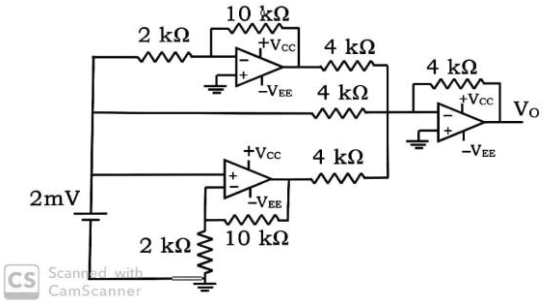
24. Draw the truth table, logic diagram and timing diagram of PIPO register.
25. Mention the different types of runtime errors.
26. Explain briefly communication satellite system.

PART- D

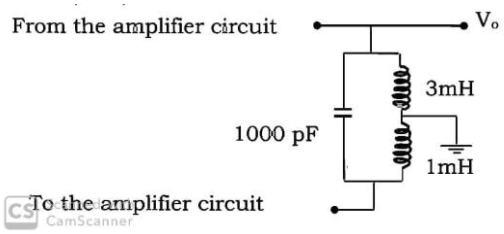
I. ANSWER ANY THREE QUESTIONS **3 X 5=15**

27. If an amplifier is provided with the input voltage 5mV, the maximum voltage gain is 2000, for signal frequency of 2kHz. It falls to 1414 at 10kHz and 50Hz. Find the output voltage, upper cutoff frequency , lower cutoff frequency ,gain in DB and Bandwidth.

28. Calculate the output voltage in the circuit given below



29. Calculate the frequency and feedback ratio of the circuit shown below.



30. An FM signal of amplitude 20V with single tone modulation has a frequency deviation of 15kHz and a bandwidth of 40kHz. Find the frequency of the modulating signal, modulation index and carrier swing. Write the expression of FM wave.

31. Simplify the Boolean expression $Y= \sum m (1,4,5,7,12,14,15) + \sum d (3,6,13)$ and then draw the logic diagram using only NAND gates.

II. ANSWER ANY FOUR QUESTIONS: **4 X 5= 20**

32. With a neat diagram explain the working of Class-B Push-pull amplifier.
33. With the circuit diagram show how to obtain an output which is anti-logarithm of input.
34. Derive the current and power relations for AM wave in terms of modulation index
35. Draw the pin diagram of IC7400.Realize NOT, AND, OR, XOR gates using NAND gates.
36. Give the comparison between Microprocessor and microcontroller
37. Write a c program to find the roots of quadratic equation $ax^2+bx+c = 0$ using switch statement.

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