JAIN COLLEGE

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

Date: December 2017 ***SUBJECT: Electronics***

II PUC

MOCK PAPER - II

Timings Allowed: 3Hrs. ***Total Marks: 70***

PART- A

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

1. Name any one biasing circuit.
2. Mention any one non-linear application of OP-AMP.
3. What is the value of modulation index if a carrier wave of amplitude 6V is amplitude modulated by audio signal of amplitude 4V?
4. Carrier wave is represented by $v_c = 25\sin(2\pi \times 10^6)\, t$. What is the amplitude of carrier wave?
5. Name the device used in controlled rectifier.
6. Expand EBCDIC.
7. What is redundant group?
8. What is the meaning of MOV X?
9. Name the standard input and output functions used in C.
10. Write the maximum range of WI-FI.

PART- B

II. ANSWER ANY FIVE QUESTIONS 5 X 2=10

11. Give any two comparison between JFET and BJT.
12. Write the steps involved in drawing DC equivalent circuit of an amplifier.
13. An amplifier with Z_i=1kΩ has a voltage gain A=1000. If a negative feedback of β=0.01 is applied to it, calculate the input impedance of the feedback amplifier.
14. Explain briefly the conditions of barkhausen criteria.
15. What is the purpose of a discriminator in an FM broadcast receiver?
16. Write any two advantages of static switches.
17. Distinguish between ACALL and LCALL.
18. Distinguish between Uplink and Downlink signals.

PART- C

III. ANSWER ANY FIVE QUESTIONS 5 X 3=15

19. What is Q-point? Explain its significance.
20. Draw the frequency response of an amplifier with and without negative feedback.
21. Mention different layers of ionosphere with their approximate height from the earth.
22. Draw the circuit diagram of chopper using MOSFET, draw the gate signal and output load voltage waveforms of a DC chopper.

23. Determine V_{DC} and I_{dc} of SCR FWR.Given firing angle is 60^0 and peak voltage of ac input to the rectifier is 325.2V and rheostat load of 25Ω is connected.

24. Draw the logic diagram and counting sequence table of a four-bit Synchronous Up Counter.

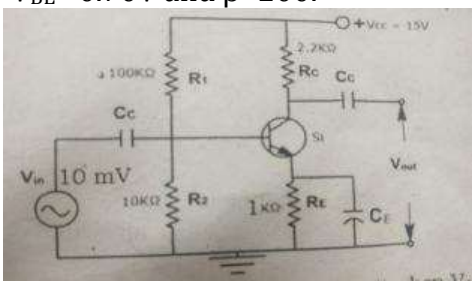
25.Write an Assembly Program to add 34H and 56H. Verify the result by binary addition.

26. Draw the block diagram of a RADAR system.

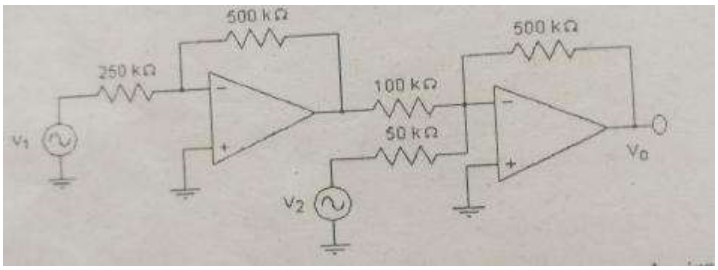
PART- D

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

27. For the given CE amplifier circuit using silicon transistor. Find i)I_c , ii) V_{CE} iii) r^1_e iv) $Z_{in.}$ v) Z_0. Given V_{BE} =0.70V and β=200.



28. Calculate the output voltage if V_1= 300mV and V_2= 700mV.



29. A Hartley oscillator oscillates at 15kHz. If the capacitor in tank circuit has a value of 0.01μF and one of the inductor is 1mH, calculate the value of the other inductor

30. The output of a transmitter is given by 400[1 + 0.4 sin (6280) t] sin (3.14×10^7) t. This voltage is fed to an antenna of resistance 500Ω. Determine i) carrier frequency. ii) Modulating frequency iii) carrier power iv) Mean power output.

31. i) Clock frequency for a T- flip flop is 1kHz. What is the output frequency of T-flipflop when T input is high.
ii) Convert the following Boolean expressions into canonical SOP form.
a) $Y = AC + B\bar{C}$
b) Y = AB + C

PART – E

V. ANSWER ANY FOUR QUESTIONS **4 X 5 = 20**

32. Explain the working of Direct-coupled amplifier.

33. Explain with a circuit diagram of 4-bit DAC using R-2R ladder network. Write the conversion table of DAC.

34. Explain the function of linear diode detector.

35. Draw the logic diagram of 4-bit UP counter, write its truth table and explain its working.

36. Give the comparison between microprocessor and microcontroller.

37. Explain the structure of C-programing language.

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