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B.E (FT) END SEMESTER EXAMINATIONS – NOV/DEC. 2020

Computer Science and Engineering

III Semester

EE 6351 - Basics of Electrical and Electronics Engineering

(Regulation 2018 - RUSA)

Time: 3 Hours Answer ALL Questions Max. Marks 100

PART-A (10 x 2 = 20 Marks)

1. Compare current source with voltage source.

2. Define RMS value of an AC quantity.

3. Write the concept of armature reaction in DC machine.

4. Define slip in induction motor and how this influences the rotor current frequency?

5. Draw the V - I characteristics of Zener diode and how it differs from PN junction diode.

6. What you mean by linear amplifier?

7. Draw the schematic arrangement of negative feedback amplifier.

8. Sketch the output versus frequency response for high pass and band pass filter and mention

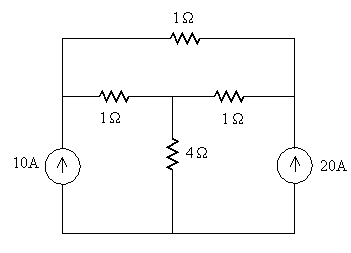
how its cut-off is decided?

9. List the reason for converting analog signal into digital signal.

10.Name the limitations of ring oscillator.

# PART – B ( 8 x 8 = 64 marks) (Answer any 8 questions)

11. Find the current through 4 Ω resistor in the circuit of figure by nodal method.



12. In a series circuit, consisting of pure resistance and pure inductance, the current and

voltage are expressed as I(t) = 5 sin (314t + 2π/3) A and V(t) = 20 sin (314t + 5π/6) V. What is

the impedance of the circuit? What are the values of resistance, inductance, and power

factor? What is the average power taken by the circuit?

13. Step by step, develop the mathematical expression for EMF induced in the DC machine, also

write the voltage equations for series and shunt motor.

14. Draw and explain the electrical and mechanical characteristics of DC shunt and DC series

motor. Also justify the same with suitable mathematical expressions.

15. Elucidate all the starting methods suitable for the single phase induction motor.

16. Explain the operation of common emitter configuration of bipolar junction transistor and also

draw the input and output characteristics of the same.

17. Write a technical note on the following : (i) biasing requirement for the amplifier; (ii) small signal

voltage gain.

18. Describe the operation of inverting and non inverting amplifier with neat sketches and

equations.

19. Develop the circuit diagram for op-amp based summer and subtractor circuits. Also explain the

working of the same.

20. Explain how the given waveform is integrated and differentiated with the help of op-amp.

Assume any one shape of waveform and step by step, show its integrated and differentiated

form.

21. Describe the operation of binary weighted resistor based digital to analog converter with

necessary circuit arrangement.

22. Develop and explain the low frequency small signal model of MOSFET.

# PART – C ( 2 x 8 = 16marks)

23. A three phase balanced delta connected load of (4 + j8) Ω is connected across a 400 V, three

phase balanced supply. Determine the phase currents and line currents. Assume the phase

sequence to be RYB. Also calculate the power drawn by the load.

24. The test results of a 3 kVA, 400 / 200 V, 50 Hz, single phase transformer are as follows:

Open circuit test : 240 V, 0.2 A, 20 W (on HV side)

Short circuit test : 30 V, 2.4 A, 50 W (on HV side); Determine transformer constants.