AM/CE/CYS/DS 113 (R-22)

Total No. of Questions : 10] [Total No.of Pages : 02

I/IV B. Tech. DEGREE EXAMINATIONS, MARCH - 2023

First Semester

AM / CE / CYS / DS

BASIC ELECTRICAL & ELECTRONICS ENGINEERING

Time : **Three Hours** Maximum : **70** Marks

Answer All Questions

Answer ONE question from each Unit. 5x14=70 M

UNIT - I

1. a) State and prove the superposition theorem with suitable example.

   b) Describe what is the parallel resonant circuit ? For the series RL circuit L=100mH and R=100Ω. Find the voltage across R and L. Also determine the phase angle.

(OR)

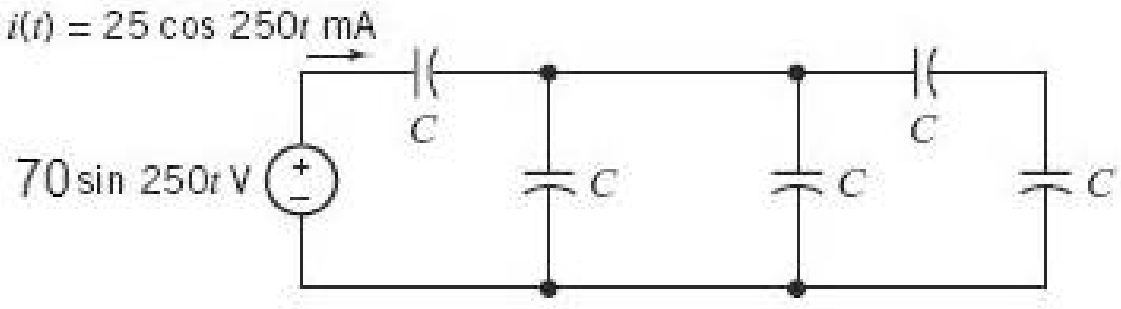
2. a) The terminal voltage of a resistor 100KΩ in series with 2000 ohms is 20V. Find the

   (i) Conductance.

   (ii) Terminal current.

   (iii) Dissipated power.

   b) The circuit containing five identical capacitors as shown. Find the value of capacitance.



UNIT - II

3. Explain star connected 3-phase circuit with phasor diagram and show that $I_L = I_{Ph}$.

P.T.O.

(OR)

4. What is the importance of Fleming right hand rule for the DC generator ? Explain simple generator working principle.

UNIT - III

5. a) Explain principle of operation of transformer and draw its phasor diagram referred to secondary side, supplying leading power factor load.

   b) Draw the characteristics of UJT ? Explain its operation.

(OR)

6. a) Explain the operation of Bridge rectifier ? Draw the input and output waveforms.

   b) How the zener diode acts as an voltage regulator ? Discuss about line regulation.

UNIT - IV

7. a) Explain how NPN transistor acts as an amplifier ?

   b) What is the operating point ? Explain it for CE amplifier.

(OR)

8. a) Explain common collector configuration with its characteristics.

   b) Compare the differences between BJT, JFET and MOSFET with their applications.

UNIT - V

9. a) Explain the following :

   (i) CMRR (ii) Slew Rate (iii) List the ideal characteristics of IC 741.

   b) Discuss the pin configuration of 741 op-amp.

(OR)

10. With neat diagram explain cascode amplifier and derive the overall voltage gain of cascode amplifier.