

2020
Vidyasagar College for Women
Part-I Examination
Electronics (General)
Paper- I

Time: 2 Hour

Full marks-100

Answer question number 1 and any four questions from rest.

1. Answer any five questions. (5x4=20)
 - a) What is maximum power transfer theorem?
 - b) What do you mean by Avalanche Breakdown?
 - c) What do you mean by CMRR?
 - d) What is the significance of term Bipolar in 'BJT'?
 - e) A BJT is current controlled device while a FET is voltage controlled device' - justify the statement?
 - f) What do you mean by Barkhusen criterion?
 - g) Establish the relation between α and β of a transistor?
 - h) Write down the effect of negative feedback?

2. What do you mean by a series resonant circuit? Find the expression of resonant frequency for this circuit? (5+15)

3. Define the term transient response? For series RC circuit determine the charge equation for charging of capacitor and also explain the charging mechanism of capacitor. From charge equation also find out expression of current and voltages across resistance and capacitance. (4+10+6)

4. Write a short note on enhancement and depletion MOSFET? Find the relation $\mu = r_d g_m$. (8+8+4)

5.
 - i) Show that negative feedback improve the stability of the gain?
 - ii) Show that negative feedback can change input and output impedances of an amplifier? (10+10)

6. Define h-parameter of transistor? Find current gain, input resistance, and output resistance using h-parameter for a transistor amplifier? (8+12)

7.
 - i) Draw the circuit diagram of OPAMP as differential amplifier and find expression of its output voltage ?
 - ii) What do you mean by virtual ground? What is the difference between virtual and actual ground? (10+10)

8.
 - i) Explain the operation of OPAMP as adder?
 - ii) Write a short note on OPAMP as differentiator. (10+10)

Submit your answer script to the mail-id:

vcfw.electronicsgen2020@gmail.com