

OR

- 6 a. Draw the circuit of Darlington emitter follower with voltage divider bias. Calculate input impedance, voltage gain and output impedance. Take $\beta_1 = \beta_2 = 100$. (08 Marks)
 $R_1 = R_2 = 100K$, $R_E = 5k\Omega$. Take $r_e = 0.1K\Omega$.
- b. Draw the block diagram of voltage series feedback amplifier and find the effect of feedback on input and output impedances. (08 Marks)

Module-4

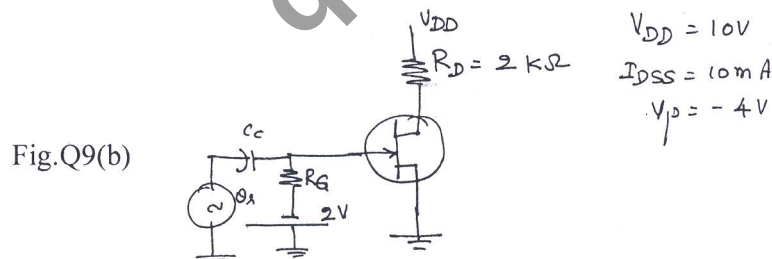
- 7 a. Draw the circuit of class – A transformer coupled power amplifier. Explain the operation of the circuit with the help of neat waveforms. Also derive an expression for maximum efficiency of conversion. (08 Marks)
- b. Draw the circuit of Wien bridge oscillator and derive an expression for frequency of oscillator. (08 Marks)

OR

- 8 a. Explain the classification of power amplifier with neat circuit diagram and waveforms of collector current and collector voltage for each type of power amplifier. (10 Marks)
- b. Explain the principle of operation of oscillator and the effect of loop gain ($A\beta$) on the output of oscillator. (06 Marks)

Module-5

- 9 a. With the help of neat diagrams, explain the construction, working and characteristics of n – channel JFET. (08 Marks)
- b. For the following circuit, find voltage gain and output impedance
 i) If $r_d = 20K\Omega$ ii) If $r_d = \infty$. (08 Marks)



OR

- 10 a. Explain the construction, working and characteristics of n – channel depletion MOSFET. (08 Marks)
- b. Draw the circuit of common source amplifier using JFET, with the help of small signal model derive an expression for current gain, input impedance, voltage gain and output impedance. (08 Marks)

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