

- Q.2 (a) For the circuit shown in fig (1), find the voltage across 2 mho conductance using Nodal analysis

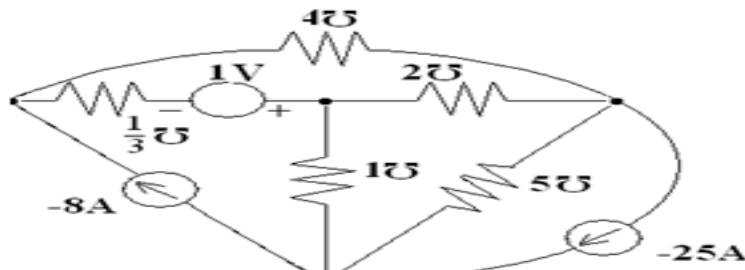


Figure 1

Answer : Book1-Example-10.3

- Q2(b) Explain Norton and Reciprocity Theorem with suitable example.

Answer : Book1-10.7(page-485)

- Q3(a) A full-wave rectifier with a centre-tapped transformer supplies a dc current of 100mA to a load resistance of $R=20\Omega$. The secondary resistance of the transformer is 1Ω . Each diode has a forward resistance of 0.5Ω . Determine the following:

- (i) RMS value of signal voltage across each half of the secondary.
- (ii) DC power supplied to the load.
- (iii) PIV rating of each diode.
- (iv) AC power input to the rectifier.
- (v) Conversion efficiency.
- (vi) Voltage regulation.

Answer : Book1-Example-1.14

- Q3(b). Compare performance of a halfwave rectifier, a centre tapped full wave rectifier and a bridge type full wave rectifier.

Answer : Book1-1.14 (page-39)

- Q4(a). Draw and explain the transfer characteristics of FETs.

Answer : Book (page-175)

- Q4(b). What are four layer devices? Explain the switching action of Silicon controlled rectifier (SCR).

Answer : Book1-2.5 (page-107)

- Q5(a) Explain the need of biasing in transistor circuit and determine the stability factor of fixed bias circuit.

Answer : Book1-3.5 (page-151)

Q5(b). What is h-parameter model? Draw and explain of BJT h-parameter model.

Answer : Book1-3.4 (page-142)

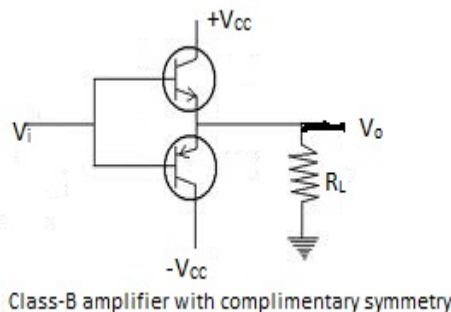
Q6(a). Draw & explain the circuit diagram and frequency response of a Single stage RC-coupled amplifier.

Answer : Book1-4.2 (page-214)

Q6(b). A BJT transistor amplifier stage has $R_E=R_C=1.5k\Omega$, $R_S =600\Omega$, $R_L=2k\Omega$ and transistor parameter as $\beta=100$ and $r_\pi=1k\Omega$. Determine the value of C_{C1} , C_{C2} and C_E needed to obtain $f_L=50Hz$ and also draw the circuit.

Answer : Book1- Example-4.7 (page-229)

Q7(a) In the ideal class-B amplifier with complimentary symmetry shown in figure having $V_{CC}=15V$, $R_L =10\Omega$. The input is sinusoidal. Determine the maximum signal output power, the corresponding collector dissipation and conversion efficiency.



Answer : Book1- Example-5.12 (page-314)

**Q7(b) Use suitable diagram to explain any two:
(i) Class-A power amplifier (ii) Class-C power amplifier**

Answer : Book1-5.2 (page-278)

Q8(a) Explain Wein bridge Oscillator.

Answer : Book1-6.10 (page-338)

Q8(b). What are the effect of negative feedback on I/P impedance, bandwidth and gain of an amplifier? Explain

Answer : Book1-6.5 (page-326)

Q.9(a) Explain the electron beam lithography. What advantage does it have over photolithographic process?

Answer : Book1- page-449

Q9(b) What is the width required to fabricate $5k\Omega$ resistor whose length is $25\mu\text{m}$. Given $R_s = \Omega/\text{square}$

Answer : Book1-Example-9.3 (page-471)

Q9(c). Briefly explain the steps involved in IC fabrication.

Answer : Book1-9.3 (page-446)

Text Book

Electronic Devices and Circuits, I J Nagrath, PHI - (2007)