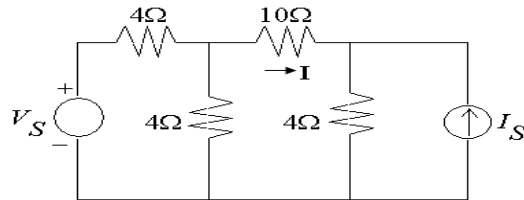


**Q.2 a. State Superposition Theorem.**

**Answer:** Page Number 484 of Text Book.

**b. In the circuit shown below, determine (i) I (ii) find  $I_S$  for  $V_S = 16V$  and  $I=0$  (iii) find  $V_S$  for  $I_S = 16 A$  and  $I = 0$**



**Fig.2**

**Answer:** Page Number 484 of Text Book.

**c. Define the terms (i) Node (ii) Branch (iii) Loop (iv) Mesh and write the procedure for writing nodal equations.**

**Answer:** Page Number 480-481 of Text Book.

**Q.3 a. Explain about n-type doping and p-type doping.**

**Answer:** Page Number 10-11 of Text Book.

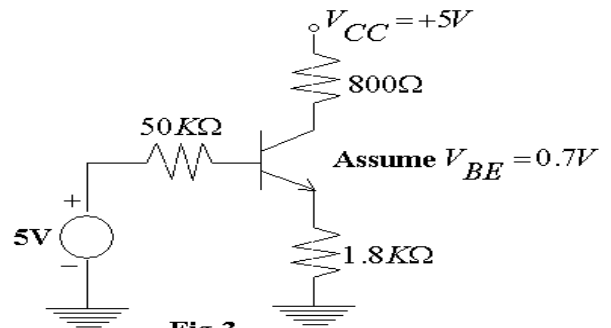
**b. Explain PN junction behaviour under forward and reverse bias.**

**Answer:** Page Number 14-16 of Text Book.

**Q.4 a. Explain the operating of PNP transistor.**

**Answer:** Page Number 81-82 of Text Book.

**b. For the transistor circuit shown below, calculate  $I_C$ ,  $I_E$  and  $I_B$ , if the transistor's  $\beta = 50$ .**



**Fig.3**

**Answer:** Page Number 91 of Text Book.

- Q.5 a. Explain h-parameter model of an amplifying device and draw h-parameter models of BJT.**

**Answer:** Page Number 142-144 of Text Book.

- b. Discuss the BJT biasing circuit with voltage feedback.**

**Answer:** Page Number 157-158 of Text Book.

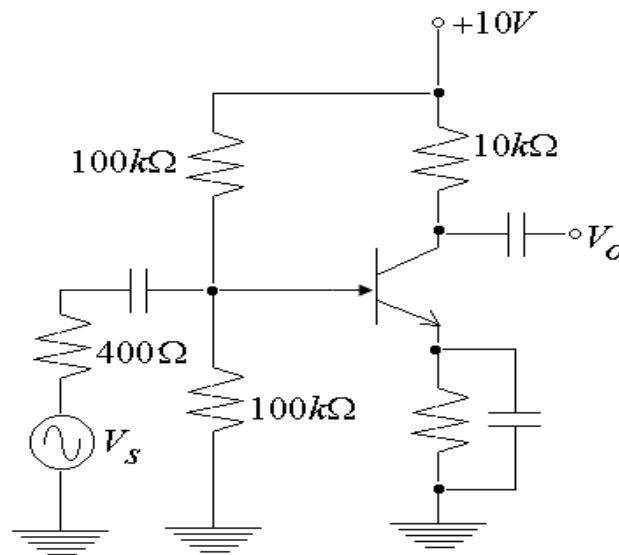
- Q.6 a. Explain the mid-frequency response of RC coupled amplifier.**

**Answer:** Page Number 218-220 of Text Book.

- b. In the BJT RC-coupled amplifier of Fig.4 determine:**

- (i)  $V_o$  for  $V_s = 5mV$  (ii)  $R_{in}$  and (iii)  $R_{out}$  in the mid-frequency region.

**Given**  $r_\pi = 600\Omega$ ,  $\beta = 100$ .



**Fig.4**

**Answer:** Page Number 220-221 of Text Book.

- Q.7 a. Explain the working of Class B transformer coupled push-pull amplifier and derive the expression for its efficiency.**

**Answer:** Page Number 292-294 of Text Book.

- b. Explain Crossover distortion in the push-pull operation of Class B amplifier.**

**Answer:** Page Number 305-326 of Text Book.

**Q.8 a. Explain the effect of feedback on impedances.**

**Answer:** Page Number 324-325 of Text Book.

**b. Draw the circuit of Wien bridge oscillator and derive the expression for its frequency of oscillation.**

**Answer:** Page Number 338-339 of Text Book.

**Q.9 a. Explain the following processes in IC fabrication**

**(i) Diffusion**

**(ii) Ion implantation**

**Answer:** Page Number 450-451 of Text Book.

**b. Explain the fabrication of NMOS enhancement type MOSFET.**

**Answer:** Page Number 459-460 of Text Book.

**TEXT BOOK**

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