ECE 221 : FUNDAMENTALS OF ELECTRONICS

(BASIC ELECTRONICS)

QUESTION ONE ✓

Explain the principle of operation of a center-tap rectifier using a suitable circuit and waveforms

marks   15 ✓

QUESTION TWO

Derive that the efficiency of a half wave rectifier is $\eta = \left(\dfrac{2}{\pi}\right)^2 x \dfrac{1}{1+r+/RL}$ ...

15 marks

QUESTION THREE ✓

The collector current is 9.95mA and that of a base current is 5µA.

Calculate the short-circuit current gain   15 marks

QUESTION FOUR

Describe how the dc stabilisation biasing method works using suitable circuits

15 marks

Current gain

$B = \dfrac{I_c}{I_B}$

$\alpha = \dfrac{I_c}{I_E}$

$\dfrac{I_c}{I_{cio} \cdot I\ell E}$