(v) Determine the RMS value of the waveform. {5}

(b) For a PNP silicon transistor the voltage drop across the base-emitter junction in normal operation is ± [200 mV | 600 mV | 0 V | 4,4 V] and the current flow across the base-emitter junction consists of mainly [electrons | holes | leakage current]. {2}

(c) What are the three basic bipolar transistor configurations? {3}

(d) Show, using a neat circuit diagram how a common emitter amplifier that incorporates a photodiode can be used to draw attention when someone enters a room. {4}

(e) Name five advantages of the SCR (silicon controlled rectifier). {5}

(f) Name three ways in which op-amps may be used. {3}

(g) Sketch labelled symbols for each of the following:- unijunction transistor, NPN transistor, field effect transistor, N-channel Mosfet, and PNP transistor. {5}

(h) How is a transistor biased for use as a switch? {2}

(i) Name two ways in which full wave rectification may be achieved. {2}

(j) A transformer has 12 times as many primary turns as secondary turns. If a 200-volt AC supply is connected across the primary, what is the secondary voltage? {2}

(k)

(i) What is meant by the term "negative temperature coefficient"? {1}

(ii) When is a system considered "closed loop"? {1}

(iii) What is commutation when referring to SCR's? {1}

(iv) The unijunction transistor is a bipolar device. [TRUE | FALSE]. {1}

(v) The FET is suitable for input stages to FM receivers. [TRUE | FALSE]. {1}

(vi) What is the basic difference between the J-FET and MOS-FET? {1}

(vii) What is the PIV rating for the diodes used in a center tapped full wave rectifier circuit? {1}

[40]

TOTAL [100]