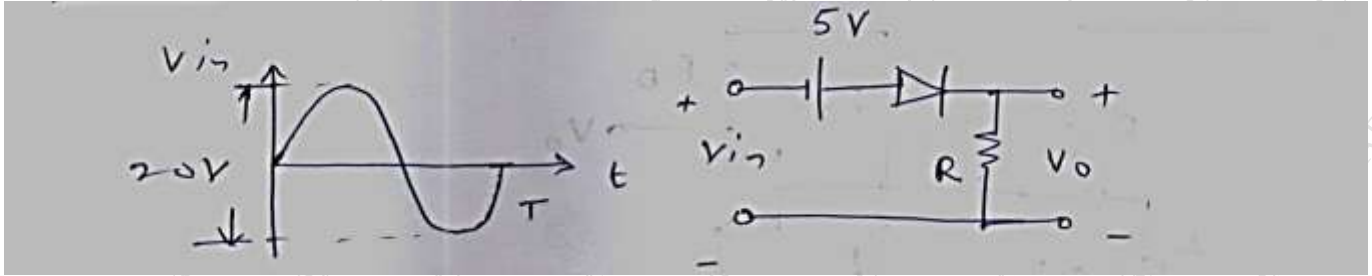


Time: 3 Hours

Max. Marks: 80 Marks

Q.1 Solve any Four out of Five**(05 Marks Each)**

- (a) State & explain the Shockley's current equation of the P-N junction diode.
 (b) For the circuit shown below in Fig. 1 draw output waveform if an input signal of 20 V peak-to-peak is applied.

**Fig. 1 for Q.2 (B)**

- (c) Explain the working principle & operation of solar cell with a neat sketch.
 (d) Sketch & explain with appropriate waveforms the capacitor (C) filter.
 (e) Draw the circuit diagram & explain the operation of full wave bridge rectifier.
- Q.2 (a)** With neat sketch, describe structure, construction, operation & V-I characteristics of the Schottky diode. **10**
Q.2 (b) For (any) full wave rectifier, define 'ripple factor' & derive expression for ripple factor (γ). **10**
Q.3 (a) With neat sketch, describe the operation of center-tapped full-wave rectifier with appropriate waveforms. **10**
Q.3 (b) Explain the V-I characteristics of a photo diode with a neat sketch. What is meant by 'dark current'? **10**
Q.4 (a) Discuss the working of Zener diode as voltage regulator for changing input supply voltage & changing load resistance. **10**
Q.4 (b) For (any) full wave rectifier, define 'ripple factor' & derive expression for ripple factor (γ). **10**
Q.5 (a) Systematically compare all filter circuits (C, L, L-C & C-L-C) on any five points. **10**
Q.5 (b) For a light emitting diode, sketch & explain constructional details & discuss the operation. **10**
Q.6 (a) With neat sketch, explain the operation of n-channel enhancement MOSFET. **10**
Q.6 (b) Explain input & output characteristics of BJT in common emitter (CE) configuration. **10**
