Paper / Subject Code: 50292 / Electronic Devices

DSE (Sem III) (R-2019 C Scheme) "ECS" May'23

26/5/2023

Time: 3 Hours

Max. Marks: 80 Marks

N. B. 1. Question No. 1 is compulsory.
2. Attempt any three from Question two to Six.
3. All Questions carry equal marks.

Q.1 Solve any Four out of Five

(a) State & explain the Shockley's current equation of the P-N junction diode. **05**

(b) With a neat sketch explain the unbiased positive clamper circuit operation. **05**

(c) Explain the working principle & operation of solar cell with a neat sketch. **05**

(d) Sketch & explain with appropriate waveforms the capacitor (C) filter. **05**

(e) Draw the circuit diagram & explain the operation of full wave bridge rectifier. **05**

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 bridge type 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 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**

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