

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -I EXAMINATION- 2026

B.Tech- 3rd Semester (ECE)

COURSE CODE (CREDITS): 18B11EC313(4)

MAX. MARKS: 15

COURSE NAME: Electronic Devices and Circuits

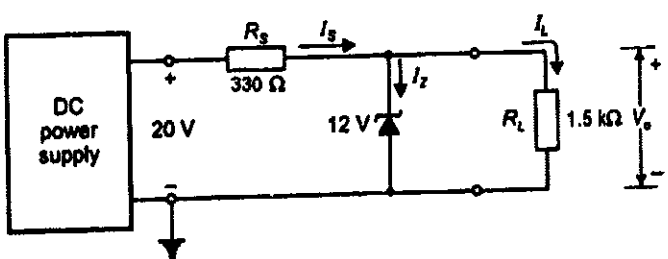
COURSE INSTRUCTOR: Lt.(Dr.) Pragya Gupta

MAX. TIME: 1 Hour

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

(c) Use of a calculator is allowed

Q.No	Question	CO	Marks
Q1	With the help of suitable V-I characteristic diagrams, discuss the effect of an increase in temperature on the forward-bias current, reverse saturation current, and breakdown voltage of a PN junction diode. Clearly indicate the changes in the characteristics on the diagrams.	CO-1	3
Q2	(a) What is meant by mobility of a charge carrier in a semiconductor? Explain its significance in determining the electrical conductivity of the semiconductor. (b) Write the continuity equation for holes in a semiconductor and define the terms used in it.	CO-1	3+1
Q3	(a) The given figure shows a loaded zener regulator. If the zener diode is disconnected, what is the load voltage?  (b) Suppose that the DC supply voltage in the circuit of the above figure slowly decreases from 20 V to 0 V. At some point along the way, the Zener diode will stop regulating. Find the supply voltage where regulation is lost.	CO-1	4

Q4	Determine v_o for each of the clamper circuits of the given figure for the input shown. Assume that the diodes are ideal. Input voltage (a) (b)	CO-1	4
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