



K. K. Wagh Institute of Engineering Education & Research, Nashik
(An Autonomous Institute From A.Y. 2022-23)

	InSem Examination-I Winter 2023		
	Exam Seat No.:		
	Academic Year:2023-2024	Semester:I	
	Name of Programme: B.Tech	Pattern:2023	
	Name of Course:Fundamentals of Electronics Engineering	Course Code: 2300107A	
	Max. Marks:30	Duration:1 Hr	

	<ol style="list-style-type: none">1. This question paper contains 2 pages.2. Answer to each new question is to be started on a new page.1. Assume suitable data wherever required, but justify it.2. Draw the neat labelled diagrams, wherever necessary.3. The last columns indicates the Course Outcome.	
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Question No. 1 Attempt following Question

- a) Explain the V-I characteristics of p-n junction diode with neat diagram. (4) CO1

OR

- b) Compare LED and Photodiode. (4) CO1
- c) A half wave rectifier circuit connected to a 230V, 50Hz source, through a transformer of turns ratio of 10:1. The rectifier is to supply power to a 500 Ohm resistor and diode forward resistance is 10 Ohm. Calculate maximum, average and rms value of output current. (5) CO3

OR

- d) A bridge rectifier is applied with input from a step-down transformer having turns ratio 8:1 and input 230V, 50 Hz. If $R_F = 10 \text{ Ohm}$, $R_S = 10 \text{ Ohm}$ and $R_L = 2000 \text{ Ohm}$ then calculate (5) CO3

maximum, average and rms value of load current.

- e) Explain the application of p-n junction diode as a full wave rectifier with centre tapped transformer with neat circuit diagram and input-output waveforms. (6) CO3

OR

- f) Explain the application of zener diode as a voltage regulator when the input is variable. (6) CO3

Question No. 2 Attempt following Question

- a) Explain the different operating regions of a BJT with their biasing conditions and applications. (4) CO1

OR

- b) Explain the construction of BJT. (4) CO1
- c) Draw and explain the circuit diagram of CE configuration of the transistor along with its output characteristics. (5) CO1

OR

- d) Draw and explain the drain characteristics of n-channel enhancement type MOSFET. (5) CO1
- e) How a BJT can be used as an amplifier? Explain with neat circuit diagram and waveforms. (6) CO3

OR

- f) How a BJT can be used as a switch? (6) CO3