



**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: III	
	Name of Programme: S.Y.B.Tech R&A	Pattern: 2022	
	Name of Course: Electrical and Electronics Systems	Course Code: ROB222003	
	Max. Marks:30	Duration:1 hr	

	<p><b>Instructions:</b> Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.</p> <ol style="list-style-type: none"><li>1. This question paper contains 2 page(s).</li><li>2. Answer to each new question is to be started on a new page.</li><li>3. Assume suitable data wherever required, but justify it.</li><li>4. Draw the neat labelled diagrams, wherever necessary.</li><li>5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question</li></ol>	
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**Question No. 1 Attempt following Question**

- a) Explain Shockley diode in detail. (4) CO1

**OR**

- b) Classify inductors, write down applications of each. (4) CO1

- c) How capacitor blocks dc & allows ac? explain in detail. (5) CO1, CO2

**OR**

- d) What are metal oxide field effect transistors? (5) CO1, CO2

- e) Draw the block diagram of operational amplifier and explain what is significance of level shifter block ? (6) CO1, CO2

**OR**

- f) Draw the block diagram of operational amplifier and explain what is significance of differential amplifier block ? (6) CO1, CO2

**Question No. 2 Attempt following Question**

- a) List down applications of relays(any 4). (4) CO1

**OR**

- b) List applications of batteries(any 4). (4) CO1

- c) How transistor can be use as switch? explain in detail. (5) CO1,  
CO2

**OR**

- d) What is difference between 78XX & 79XX Voltage regulator series? Which ICs will be required to design power supply of +,- 12 Volts? (5) CO1,  
CO2

- e) List down Different switches and explain SPDT switches in detail with application. (6) CO1

**OR**

- f) Draw and explain block diagram of power supply in detail. (6) CO1