



**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	

**Instructions:** 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.

1. This question paper contains 2 page(s).
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question

**Question No. 1 Attempt following Question**

a) Write difference between BJT & FET. (4) CO1

**OR**

b) List down four different types of diodes & applications of these diodes in detail. (4) CO1

c) List difference between active & passive derives (at least 5 diff). (5) CO1

**OR**

d) Explain Shockley diode in detail. (5) CO1

e) List different types of capacitors. Explain how capacitor blocks DC and allows AC? (6) CO1, CO2

**OR**

f) List characteristics of Operational Amplifier. Describe the significance of first stage (Differential amplifier) block in operational amplifier's block diagram. (6) CO1, CO2

**Question No. 2 Attempt following Question**

a) List different types of switches and explain STDP switch in detail. (4) CO1

**OR**

b) Write down applications of switches in robotic industry. (4) CO1

c) What are relays? Explain operation of relays in detail. (5) CO1,  
CO2

**OR**

d) Explain any application of relay with diagram. (5) CO1,  
CO2

e) Explain basic block diagram of power supply in detail. (6) CO1

**OR**

f) How transistor can be use as switch ? Explain in detail. (6) CO1