



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

SUMMER-2024	
Exam Seat No.:	
Academic Year:2023-2024	Semester:IV
Class:SY	Program:B.Tech
Branch Code:ROB	Pattern:2022
Name of Course:Hydraulics and Pneumatics	Course Code:ROB222013
Max. Marks:60	Duration:2.30 Hrs.

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 _____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

- 1a) State and explain governing law used in fluid power system in details. (6) CO1

Question No. 2 Attempt following Question

- 2a) Explain any three desirable properties of hydraulic fluid (6) CO1

Question No. 3 Attempt following Question

- 3a) Explain Control of Single and Double -Acting Hydraulic Cylinder with neat sketch. (8) CO1, CO2

OR

- 3b) Draw Regenerative hydraulic circuit with 4/3 way DCV and explain its working. (8) CO2, CO3

- 3c) Explain shuttle valve with a neat sketch. State its industrial applications. (8) CO2, CO3

OR

- 3d) Explain counter balance valve circuit with neat sketch. (8) CO2, CO3

Question No. 4 Attempt following Question

- 4a) Draw circuit for : (8) CO2, CO3

i. Controlling speed of pneumatic double acting cylinder.

ii. Speed control of a pneumatic motor.

OR

4b) Explain an Electro-hydraulic servo system with neat sketch? (8) CO3, CO4

4c) Write any four Characteristic of compressed air. (8) CO3, CO4

OR

4d) Draw a typical symbol of FRL unit and explain the working principle of lubricator. (8) CO3, CO4

Question No. 5 Attempt following Question

5a) Explain PLC based electro-hydraulic systems. (8) CO4, CO5

OR

5b) Explain in short how does a limit switch differ from a push-button switch. (8) CO5

5c) Explain in short what is an electrical relay? How does it works. (8) CO5

OR

5d) What is a programmable logic controller? State the main function of (8) CO5

i. CPU

ii. Programmer/monitor

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX