

Hydraulics & Pneumatics

Assignments for IA revision May 2022

Guidelines:

1. You need to submit the typed assignment (converted to PDF).
2. Submit a separate word file for each assignment. (Three PDF files to be submitted)
3. Marks will be converted out of 30
4. ZERO marks will be given for assignment with plagiarism/copy-paste/similarity.
5. Submit the assignment, only if, you have the confidence to improve your IA score. Else previous IA marks are carry forwarded.
6. Submission deadline will be followed very strictly.

Assignment 1 (15 Marks)

1. Select the appropriate hydraulic pump for 350 bar application in a hydraulic press, where the oil is sensitive to dirt and dust. Flow required is 25 to 47 LPM. State the reasons for selecting this pump. (5 Marks)
2. For the above example (as shown in case 1 above) select the appropriate filter. List various methods of filter rating. State the filter rating required for case 1 above. (5 Marks)
3. Calculate the upstream number of particles for Beta50 filter with beta efficiency of 75% showing downstream particles as 200. (2 Marks)
4. A hydraulic cylinder with a 100 mm bore and 50 mm rod dia is supplied with 100 LPM oil from a gear pump. Calculate the retraction speed of the piston. (3 Marks)

Assignment 2 (10 Marks)

Draw a suitable hydraulic circuit for a press machine, where the punch tool is required to be moved fast (100 m/min) for 400 mm and then form a cup of MS sheet for 35 mm at the slower federate (9 m/min). Explain this circuit. (10 Marks)

Assignment 3 (20 Marks)

1. Analyse the circuit given below in Fig 1 (10 Marks)

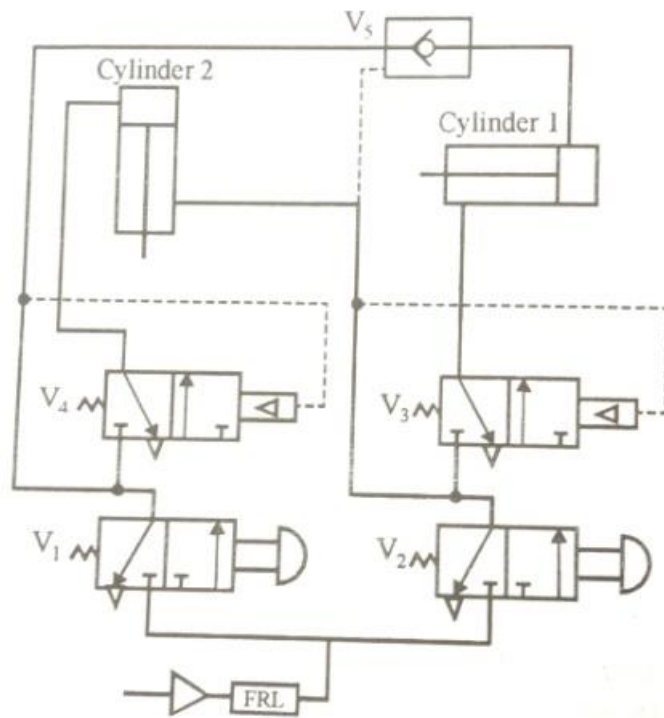


Fig 1

2. Draw a circuit to avoid accident in hydraulic press (safety for both the hands of the machine operator). Explain this circuit. (10 Marks)