Fifth Semester B.E. Degree Examination, Jan./Feb. 2023
Hydraulics and Pneumatics

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. Draw and explain the structure of hydraulic control system.   (10 Marks)
   b. Explain the construction and working of unbalanced vane pump.   (10 Marks)

OR

2 a. Explain with neat sketch of Double acting cylinder.   (10 Marks)
   b. Explain with neat sketch of piston motor.   (10 Marks)

Module-2

3 a. Illustrate with diagram, the construction and working of 4/3 spring centered spool valve.
                                                                                        (10 Marks)
   b. Describe with diagram, the construction and working of pressure control valves used in hydraulic circuit.   (10 Marks)

OR

4 a. Explain briefly filters and strainers in hydraulic system.   (10 Marks)
   b. What are the desirable properties of hydraulic oil? Explain them.   (10 Marks)

Module-3

5 a. What is regenerative circuit? Sketch schematically regenerative circuit to increase the extension speed of a double acting cylinder.   (10 Marks)
   b. Explain with a neat circuit diagram, the working of double pump hydraulic system.
                                                                                        (10 Marks)

OR

6 a. Explain with a neat circuit diagram, the counter balance valve application.   (10 Marks)
   b. Sketch and explain the operation of a hydraulic circuit for the control of a spring return – single acting cylinder.   (10 Marks)

Module-4

7 a. Draw and explain the structure of pneumatic power system.   (10 Marks)
   b. Explain with neat sketch end position cushion arrangement in air cylinder.   (10 Marks)

OR

8 a. Explain the working of poppet valve with a neat sketch. (10 Marks)
  b. Explain the direct and indirect control of pneumatic cylinders. (10 Marks)

Module-5

9 a. Explain the working of motion control diagram for a 2-cylinder pneumatic circuit. (10 Marks)
  b. Write a brief note on SPST- NO, SPST – NC, DPST – NO/NC, DPDT – NO/NC and LS – NO with symbol of these switches. (10 Marks)

OR

10 a. Explain with neat sketch of piston type compressor. (10 Marks)
   b. Write a short note on :
      i) Drier
      ii) Filter
      iii) Regulators. (10 Marks)

* * * * *