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INTERNATIONAL CENTRE FOR APPLIED SCIENCES

(Manipal University)

III SEMESTER B.S. DEGREE EXAMINATION – NOV. / DEC. 2016

SUBJECT: FLUID AND PNEUMATIC CONTROL (MET 232)

(BRANCH: MECHATRONICS)

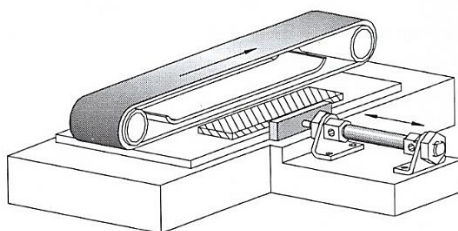
Monday, 28 Nov. 2016

Time: 3 Hours

Max. Marks: 100

- ✓ Answer ANY FIVE full Questions.
- ✓ Missing data, if any, may be suitably assumed

- 1A) Write a note on types of air motor. (06)
- 1B) Sketch and explain a pneumatic system and mention the advantages and disadvantages. (10)
- 1C) List few industrial applications of pneumatic system. (04)
- 2A) With sketch label the different parts of 2/2 poppet valve. (06)
- 2B) Sketch and write note on air regulator. (08)
- 2C) With a symbol, sketch two way and four way spool valve. (06)
- 3A) Draw a structure of group-changing relay circuit for two groups. (04)
- 3B) Sketch and label 3/2 poppet valve with symbol. (08)
- 3C) Using a sliding table a plank of wood is to be pushed under a belt sanding machine. By pressing a push button switch the sliding table with the plank of wood positioned on it is pushed under the belt sanding machine. By pressing another push button switch the sliding table is returned to its start position. Draw an electro-pneumatic circuit. (08)



- 4A) Sketch and explain the working of lobe compressor. (08)
- 4B) With the help of circuits differentiate between supply air throttling and exhaust air throttling? (06)
- 4C) Sketch and label air receivers unit. (06)
- 5A) Define Pascal's Law and explain with an example. (04)
- 5B) List and explain advantages and disadvantages by distinguishing characteristics of compressed air (08)
- 5C) Explain with sketch four functions of a hydraulic reservoir. (08)

- 6A)** With sketch explain gas charged accumulators. **(06)**
- 6B)** Sketch pilot-operated relief valve for hydraulic system. **(06)**
- 6C)** Illustrate the bleed-off valve? With an example circuit compare it with Meter-in/out circuit. **(08)**
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- 7A)** Sketch and explain the working of cushion assembly in pneumatic cylinder. **(06)**
- 7B)** List and explain types of filters based on location in hydraulic systems. **(06)**
- 7C)** Sketch rotating cam radial-piston pump and label its parts. **(08)**
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- 8A)** Write a function diagram for time response for delay-on, delay off and signal shortening. **(06)**
- 8B)** With sketch label the different parts of time delay valve. **(08)**
- 8C)** Sketch and explain one way flow control valve. **(06)**

