Name : ....

Reg. No: ....

EIGHTH SEMESTER B.TECH (ENGINEERING) DEGREE EXAMINATION, MAY 2012

ME 04 803 – MECHATRONICS AND MACHINE CONTROLS

Time : Three Hours   Maximum : 100 Marks

Answer all questions

I (a) A sensor gives a maximum analogue output of 5 V. What word length is required for an analogue-to-digital converter if there is to be a resolution of 10 mV?

(b) Brief about time display valves.

(c) What are the demerits of the plastic film type of potentiometer ?

(d) Write short notes on piezoelectric transducer.

(e) What is the uses of I,P converters ?

(f) Write the principles of fluid logic control.

(g) Explain the operation of a pressure relief valve.

(h) Explain the concept of stability.

$(8 \times 5 = 40)$

II (a) Explain how a sequential valve can be used to initiate an operation only when another operation has been completed.

Or

(b) Explain with suitable example for application of rotary valves.

III.(a) Explain a hydraulic press circuit which employs regeneration principle as well as double pump unloading feature.

Or

(b) With the help of a neat sketch explain the construction and working of a shuttle valve and servo valve. Give their graphical symbol.

IV (a) Explain with neat sketch the working principle of any two types of hydraulic pumps.

Or

(b) Explain with suitable example applications of fast exhaust valves.

V (a) Explain the working principle of Hall effect sensor and Pyro electric sensor.

Or

(b) Discuss with diagrams the working of three proximity sensors.

$(4 \times 15 = 60)$

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