D 23464 (Pages : 2) Name.....

Reg. No.....

FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2011

ME/AM 04 506—METROLOGY AND INSTRUMENTATION

(2004 admissions)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

1. (a) Explain the different types of input quantities.
   (b) Explain about Mc Lintock approach.
   (c) What is the difference between active and passive transducer.
   (d) Explain in detail about vacuum pressure measurements.
   (e) Explain the resistance thermometer.
   (f) Explain industrial thermocouples and their ranges.
   (g) Explain the methods of measuring surface roughness.
   (h) Explain three wire method for measuring effective diameter.

(8 × 5 = 40 marks)

Part B

2. (a) (i) Explain first and second order instruments with neat sketch. (8 marks)
   (ii) Explain the different methods of correcting for spurious inputs. (7 marks)

Or

   (b) (i) Explain the static characteristics of a measurement system. (8 marks)
   (ii) Explain about systematic and random errors. (7 marks)

3. (a) Explain the different types of strain gauge circuits with neat sketch. (15 marks)

Or

   (b) (i) Explain the construction and working of piezoelectric transducers with neat sketch. (8 marks)
   (ii) Explain different types of photoelectric sensors and its applications. (7 marks)

4. (a) Explain the constructional details and working principle of magnetic flow meter with neat sketch and also discuss its merits and demerits. (15 marks)

Or

   (b) What is surface texture ? and Explain different types of surface textures. (15 marks)

Turn over

5. (a) Explain principle construction and working of Parkinson's gear tester with a neat sketch. (15 marks)

Or

(b) Explain the construction,operation and programming of co-ordinate measuring machine (CMM). (15 marks)

[4 × 15 = 60 marks]