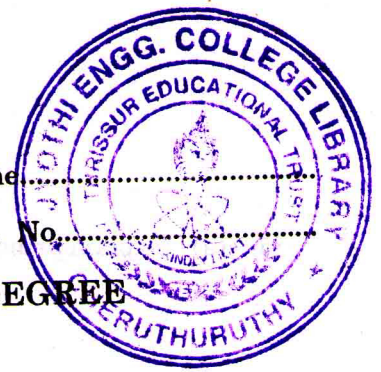


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(Pages : 2)

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

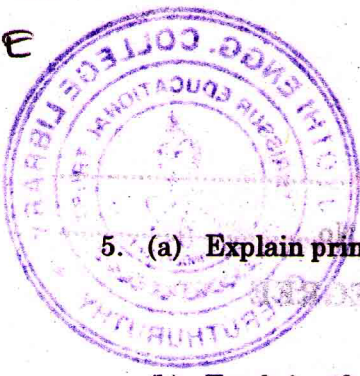
2. (a) (i) Explain first and second order instruments with neat sketch. (8 marks)
- (ii) Explain the different methods of correcting for spurious inputs. (7 marks)
- Or*
- (b) (i) Explain the static characteristics of a measurement system. (8 marks)
- (ii) Explain about systematic and random errors. (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

ME



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 x 15 = 60 marks]

Part A

- (a) Explain the different types of input devices.
- (b) Explain about file input/output.
- (c) What is the difference between active and passive transducer.
- (d) Explain in detail about vacuum pressure transducer.
- (e) Explain the testator instrument.
- (f) Explain about the methods of measuring surface roughness.
- (g) Explain the method for measuring effective diameter.

Part B

- (a) (i) Explain the different types of strain gauges with neat sketch. (8 marks)
- (ii) Explain the different methods of exciting for piezoelectric transducer. (7 marks)
- (b) (i) Explain the static characteristics of a measurement system. (8 marks)
- (ii) Explain about systematic and random errors. (7 marks)
- (c) (a) Explain the different types of strain gauges with neat sketch. (15 marks)
- (b) Explain the construction and working of piezoelectric transducer with neat sketch. (8 marks)
- (c) Explain different types of photoelectric sensors and its applications. (7 marks)
- (d) Explain the construction details and working principle of magnetic flow meter with neat sketch and also describe its merits and demerits. (15 marks)
- (e) What is surface texture? and Explain different types of surface texture. (15 marks)