

**DEPARTMENT OF MECHANICAL ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY: TIRUCHIRAPPALLI**

SPECIFICATIONS FOR TENDER

The engineering equipment manufacturers/ suppliers are required to supply the following Test rigs/Equipments for the Thermal Engineering Laboratory of Mechanical Engineering Department as per the specifications.

2. SMOKE METER

- Should measure smoke opacity and absorption.
- Should have the following measurement range and resolution.

PARAMETER	MEASUREMENT RANGE	RESOLUTION
Opacity	0 to 100%	0.1%
Absorption	0 to 99.99m ⁻¹	0.01m ⁻¹
Linearity	50%	+/- 2%

- Accuracy should be better than +/- 0.1m⁻¹ of measurement value.
- Should have auto and self calibration and zero correction.
- Should be suitable for steady state and free acceleration measurements.
- Should have computer interface RS 232 with USB computer interface.
- All the data taken from the instruments need to be given as input to the computer for analysis.
- Should supply computerization software.
- Should supply remote control unit.
- Should supply accessories to connect the meter to the engine.
- Should have inbuilt printer for documentation.
- Should operate on both AC and DC.
- Should have provision to connect with vibration type universal magnetic speed pickup to measure engine speed and oil temperature measurement.
- Should indicate for incorrect pressure, temperature and operating voltage.
- Should have the provision of linearity check.
- Should hold valid approval from ARAI, Pune.
- Should hold valid confirmative of production certificate from ARAI, Pune.
- All the electrical systems must be as per IS specification
- Installation and Demo is must at the Thermal Engineering Laboratory of the Institute.
- Should provide at site calibration every six months throughout the life of the instrument.
- Offer should also include spare parts/consumables for three years of satisfactory operation.