Question Paper

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES
IV SEMESTER B.Sc.(Applied Sciences) in Engg.
END SEMESTER THEORY EXAMINATION- MAY/JUNE-2022
METROLOGY AND MEASUREMENTS [IME 244 - S2]

Marks: 50   **Duration: 180 mins.**

Answer all the questions.

Missing data may be suitably assumed

1)
   A) Explain Linearity, Repeatability, Reproducibility, Resolution and Calibration of a measuring instruments. (5)

   B) Explain the working of a McLeod gauge with a neat sketch and derive the equation to measure unknown vacuum pressure. (5)

2)
   A) Explain with sketch, working of disappearing filament optical pyrometer with neat sketch. List its fields of application. (5)

   B) Write short notes on (5)

      - Strain Gauge Backing Materials and Bonding Materials
      - Wire type and foil type strain gauges

3)
   A) Explain the method of measuring force using a hydraulic load cell and Pneumatic load cell (5)

   B) With the help of appropriate sketches explain the following: (5)

      i)Upper deviation ii) Fundamental deviation iii) Interference fit iii) Clearance fit

4)
   A) List the different types of Gauges and explain Taylor's principle for design of gauges. (5)

   B) (5)

Design **Go and No-Go Plug** gauge for following Hole shaft combination $\phi 50\ H_7/\ d_8,$
Assume