BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI

(MID SEMESTER EXAMINATION)

CLASS: BE **SEMESTER : IV**
BRANCH: PRODUCTION **SESSION : SP/17**

SUBJECT: PE4003 METROLOGY

TIME: 1.5 HOURS **FULL MARKS: 25**

INSTRUCTIONS:

1. The total value of the questions are 30 marks.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtain exceed 25 marks. The excess will be ignored.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. The missing data, If any, may be assumed suitably.
6. Nothing should be written on front or back of the question paper except tick marking.

Q1. (a) State the applications of metrology in engineering. [2]
(b) Define: (i) calibration, (ii) sensitivity of instrument (iii) reproducibility in measurement [3]

Q2. (a) Differentiate between line standard and end standard of measurement. [2]
(b) Explain the elements of a measurement system. [3]

Q3. (a) State various uses of comparators. [2]
(b) How can comparators be classified? What are the types? [3]

Q4. (a) Briefly explain electro-mechanical measuring system with block diagram. [2]
(b) Describe the working principle of Zeiss ultra-optimeter. [3]

Q5. (a) Define Tolerance. What are its types? [2]
(b) Explain ‘maximum material condition’ and ‘least material condition’ in limit and fit system. [3]

Q6. (a) Compare precision instrument and gauge. [2]
(b) Explain Taylor’s principle of gauging with an example. [3]

*******01.03.17*****M**