BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: B.TECH. **SEMESTER: IV**
BRANCH: PRODUCTION **SESSION : SP/2020**

SUBJECT: PE206 METROLOGY & MEASUREMENT

TIME: 2 HOURS **FULL MARKS: 25**

INSTRUCTIONS:
1. The total marks of the questions are 25.
2. Candidates may attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.

				CO	BL
Q1	(a)	How can you determine the sensitivity of a measuring instrument? Give an example.	[2]	1	1
Q1	(b)	Discuss accuracy and precision in measurement with their distinguishing features.	[3]	1	2
Q2	(a)	Illustrate parallax error in measurement. How to overcome it?	[2]	1	2
Q2	(b)	Four length bars of basic length 100 mm are to be calibrated using a calibrated length bar of 400 mm whose actual length is 399.9992 mm. It was also found that lengths of bars B, C and D in comparison to A are +0.0002 mm, +0.0004 mm, and -0.0001 mm respectively and the length of all the four bars put together in comparison to standard calibrated bar is +0.0003 mm longer. Determine the actual length of all the four bars.	[3]	1	3
Q3	(a)	Define: Fundamental Deviation.	[2]	2	1
Q3	(b)	Explain the concept of interchangeability in assembly.	[3]	2	2
Q4	(a)	Explain maximum material condition (MMC) with respect to limit and fit systems.	[2]	2	2
Q4	(b)	Determine the type of fit: Hole size: 20±0.05 mm Shaft size: 20±0.05 mm	[3]	2	3
Q5	(a)	How comparator device works?	[2]	3	2
Q5	(b)	Indicate various mechanisms for displacement amplification in mechanical comparators.	[3]	3	2

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