

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI  
(END SEMESTER EXAMINATION)**

**CLASS: BTECH  
BRANCH: MECHANICAL ENGG.**

**SEMESTER : VI  
SESSION :SP/2023**

**SUBJECT: ME357 MEASUREMENT AND INSTRUMENTATION**  
**TIME: 3Hours**

**FULL MARKS: 50**

**INSTRUCTIONS:**

1. The question paper contains 5 questions each of 10 marks and total 50 marks.
  2. Attempt all questions.
  3. The missing data, if any, may be assumed suitably.
  4. Before attempting the question paper, be sure that you have got the correct question paper.
  5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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		CO	BL
Q.1(a)	Explain the three application areas for measurement systems.	[5] 2	3
Q.1(b)	What are the main elements in a measurement system and what are their functions?	[5] 3	3
Q.2(a)	Explain the functions of transducer in an Electronic Measurement system.	[5] 3	2
Q.2(b)	What is piezoelectric transducer? List the advantages and disadvantages of Piezoelectric Transducers.	[5] 3	3
Q.3(a)	Describe briefly about the term Amplification. What do you mean by Detector-transducer stage and Signal conditioning stage?	[5] 3	4
Q.3(b)	What is an OP-amp? Enumerate some of commonly used OP-amp.	[5] 2	3
Q.4(a)	Discuss Metrology as a means to achieve quality control also explain the objectives of metrology.	[5] 3	4
Q.4(b)	What is comparator? State the advantages and disadvantages of Mechanical Comparator.	[5] 3	2
Q.5(a)	Explain briefly about the mechanical strain gauge. what are the techniques of strain measurement.	[5] 3	3
Q.5(b)	Explain about the electrical gauge. How electrical strain gauges are classified?	[5] 3	4

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