

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

**CLASS: BTECH**  
**BRANCH: CSE**

**SEMESTER : VI**  
**SESSION : SP/2024**

**SUBJECT: EC379 MEASUREMENT AND INSTRUMENTATION**

**TIME: 3 Hours**

**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)	Distinguish between different types of error in measurement system?	[5] 1	2
Q.1(b)	Explain functional elements of measurement system.	[5] 1	2
Q.2(a)	Explain the working of PMMC , how it is different from MI type instrument.	[5] 2	2
Q.2(b)	Explain the working of CRO with proper diagram.	[5] 2	1
Q.3(a)	Describe DAS with detailed description of each block.	[5] 3	2
Q.3(b)	Explain Data logger with diagram.	[5] 3	2
Q.4(a)	Explain PID controller, what are the two basic types of control loops? Explain a setpoint in a PID controller?	[5] 4	2
Q.4(b)	Draw and explain PID controller using OPAMP.	[5] 4	2
Q.5(a)	Interface Arduino with distance sensor and explain the program.	[5] 5	4
Q.5(b)	Why cannot the 6 analog pins in an Arduino Uno microcontroller be used to measure current? Which pin among the digital pins of an Arduino Uno microcontroller is connected to the built-in LED?	[5] 5	3

:30/04/2024 M: