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**K. J. Somaiya Institute of Technology, Sion, Mumbai-22**  
**(Autonomous College Affiliated to University of Mumbai)**

Nov – Dec 2023

(B.Tech ) Program: EXTC Scheme I/II/IIB/III: II

Examination TY Semester: V

Course Code: EXDLC5052 Course Name: Sensor Technology

Date of Exam: 5/12/2023

Duration: 2.5 Hours

Max. Marks:60

**Instructions:**

- (1) All questions are compulsory.
- (2) Draw neat diagrams wherever applicable.
- (3) Assume suitable data, if necessary.

		Max. Marks	CO	BT level
Q 1	Solve any six questions out of eight:	12		
i)	What is the working principle of RTD?	2	CO1	U
ii)	Write the selection criteria for transducer?	2	CO2	U
iii)	How does accelerometer sensor work?	2	CO1	U
iv)	What is the smart sensor?	2	CO1	U
v)	What are the types of Gas detectors?	2	CO1	U
vi)	What is the Biosensor?	2	CO1	U
vii)	What are the types of Bluetooth?	2	CO2	U
viii)	List the component of data acquisition system.	2	CO2	U
Q.2	Solve any four questions out of six.	16		
i)	Explain LVDT construction with its working.	4	CO1	U
ii)	Explain principle of Capacitive Pressure Transducer.	4	CO2	U
iii)	Explain the most suitable best method used for flow measurement.	4	CO3	U
iv)	Explain working principle of optical sensors with diagram.	4	CO4	U
v)	Explain various actuation mechanisms.	4	CO5	U
vi)	Explain in detail types of remote sensing sensors	4	CO6	U

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Q.3	Solve any two questions out of three.	16		
i)	Draw and explain Instrumentation amplifier. State the advantages and disadvantages of instrumentation amplifier.	8	CO4	U
ii)	Draw and explain the architecture of MEMS sensors. Discuss any one example of MEMS.	8	CO6	U
iii)	Draw and explain in detail SCADA system with application and advantages.	8	CO5	U
Q.4	Solve any two questions out of three.	16		
i)	What is the onboard sensor? How it is used in automobile applications. List the sensors used in vehicles.	8	CO6	U
ii)	Elaborate the working principle of proximity sensors with neat diagram in detail. List its applications.	8	CO3	U
iii)	Explain the principle of operation and construction of ultrasonic flow meter. What are the advantages of ultrasonic flow meter?	8	CO4	U

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