



FIRST INTERNAL ASSESSMENT

SUB: SENSORS & TRANSDUCERS
SUB CODE: 15EE662
DEPT/SECTION : EEE/A
Faculty: Dr SM Shashidhar

DATE: 17/02/2018
TIME: 9.30 AM to 10.45 AM
MAX MARKS: 30

NOTE: Answer the following questions

QUESTIONS	Marks
1) What are the factors influencing the choice of transducer? – Explain. OR	6
2) Distinguish between: (i) sensors and transducers (ii) Analog transducers and digital transducers (iii) Transducer and Inverse Transducer (iv) Passive Transducers and active Transducers.	
3) Explain the construction and working of eddy current tachometer. OR	6
4) Draw the schematic diagram of LVDT and explain the electromechanical transfer characteristics	
5) The output of an LVDT is connected to a 5V voltmeter through an amplifier whose amplification factor is 250. An output of 2mV appears across the terminals when the core moves through a distance of 0.5 mm. calculate the sensitivity of LVDT. The milli voltmeter scale has 100 divisions The scale can be read to 1/5 of a division. Calculate the resolution of the instrument in mm. OR	6
6) A multistage amplifier employs five stages each of which has a power gain of 30. (i) What is the total gain of the amplifier in dB? (ii) If a negative feedback of 10dB is employed, find the resultant gain.	
7) A piezoelectric crystal has the dimensions of 5mm x 5mm x 1.5mm and having voltage sensitivity = 0.055 V-m/N. It is used for force measurement and gave an output voltage of 100V. What force did it measure? OR	6
8) A quartz piezoelectric crystal having a thickness of 2mm and a voltage sensitivity of 0.055 Vm/N is subjected to a pressure of 200 psi. Calculate the voltage output of this transducer.	
9) Explain the necessity of signal conditioning. What are the processes adopted in signal conditioning? OR	6
10) Explain the following transducers (i) photoemissive cell (ii) photovoltaic cell (iii) photoconductive cell.	