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

CLASS   : PG   SEMESTER   : II
BRANCH : ECE   SESSION   : SP 2022
TIME   : **2.00 HOURS**   FULL MARKS : 50

Subject with Code : EC599 Sensors and Actuators
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INSTRUCTIONS:
1. This question paper contains 5 questions each of 10 marks and total 50 marks.
2. Answer all the 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.

Q.1(a)   How the sensors are classified based on position and based on energy? Give suitable examples.   [5]

Q.1(b)   Explain the construction and working of Fiber optic pressure sensor. Write down the advantages   [5]
of finer optic sensor over conventional sensor.

Q.2(a)   With suitable diagram explain the construction and working of LVDT. How LVDT is converted   [5]
to RVDT.

Q.2(b)   Describe the construction and working of ferromagnetic Plunger type Transducer. Draw   [5]
the field Vs length plot of single coil plunger type transducer.

Q.3(a)   Define cell potential. Explain how the cell potential is calculate. Calculate the cell potential for   [5]
ion selective membrane electrode.

Q.3(b)   With suitable diagram explain the working of photo emissive cell and photomultiplier.   [5]
How photomultiplier is different from photo emissive cell.

Q.4(a)   With suitable diagram explain the working of shaft encoder.   [3]

Q.4(b)   Draw normally closed and normally open level limit switch. Give a suitable example where it is   [2]
used.

Q.4(c)   Draw and explain the construction of Pressure Switch.   [5]

Q.5(a)   Define actuator. Explain the working of various types of Pneumatic Actuation.   [5]

Q.5(b)   Explain the working of relay. What is the difference between "Make before Break" and "Break   [5]
before Make".

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04/05/2022 E