

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (NEW) EXAMINATION – WINTER 2018****Subject Code: 2182604****Date: 29/11/2018****Subject Name: Automation & control in Rubber Industries****Time: 02:30 PM TO 05:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a) List the dynamic characteristics of an instrument. Define any two. 03
- Q.1 (b) Write in brief on classification of instrument. 04
- Q.1 (c) Discuss in detail about the elements of instrument. 07
- Q.2 (a) Draw any three symbols used in instrumentation diagram. 03
- Q.2 (b) Write a short note on subcomponent specification. 04
- Q.2 (c) Discuss in detail about the errors in data acquisition and analysis in rubber industries. 07
- OR**
- Q.2 (c) Write in brief on turnkey software and menu drive software respectively with respect to rubber industries. 07
- Q.3 (a) Write in brief on any one elastic pressure transducer. 03
- Q.3 (b) With schematic diagram, explain the working principle of thermocouple. 04
- Q.3 (c) Discuss in detail about in-line stationery torque transducer. 07
- OR**
- Q.3 (a) Give the full form of LVDT. List out it's major components. 03
- Q.3 (b) Write a short note on thermal well. 04
- Q.3 (c) Discuss in detail about the in-line rotating torque sensor. 07
- Q.4 (a) Give advantages and disadvantages of hydraulic force meter. 03
- Q.4 (b) How barrel temperature measurement is carried out during extrusion process? 04
- Q.4 (c) List the principle sources of variation calendered gauge. Discuss any one in detail. 07
- OR**
- Q.4 (a) Give advantages and disadvantages of pneumatic force meter. 03
- Q.4 (b) How screw speed measurement is carried out during extrusion process? 04
- Q.4 (c) Which different types of sensors are used to carry out gauge measurement in calendaring? 07
Write on any two.
- Q.5 (a) Write a brief note on comparator. 03
- Q.5 (b) Compare Programmable Logic Controller (PLC) to Computer. 04
- Q.5 (c) Derive transfer function for first order system by taking suitable example. 07
- OR**
- Q.5 (a) Write a brief note on transmission lines. 03
- Q.5 (b) Differentiate Hydraulic Controller and Pneumatic Controller. 04
- Q.5 (c) Derive transfer function of pneumatic control valve. 07
