

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (Old) EXAMINATION – WINTER 2019****Subject Code: 151006****Date: 27/11/2019****Subject Name: Applied Electronics****Time: 10:30 AM TO 01:00 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) State different types of temperature transducers. Explain them in brief. **07**
(b) Describe SMPS with necessary diagram and waveform. **07**
- Q.2** (a) Draw and explain block diagram and voltage transfer characteristics of an ideal Op-amp. What is virtual ground concept? **07**
(b) What is Digital Multi Meter? Draw and Explain the block diagram of DMM. Also state the advantages of DMM. **07**
- OR**
- (b) Define the following terms: CMRR, Slew rate, Transducer, Photoemission effect, Intrinsic standoff ratio(η), Duty cycle, Multiplexer **07**
- Q.3** (a) With the help of the block diagram, explain the operation of a single trace Cathod Ray Oscilloscope. (CRO) **07**
(b) Derive the expression of OP-AMP for non-inverting closed loop voltage gain. (A_{vf}) **07**
- OR**
- Q.3** (a) Explain working and principal of storage oscilloscope? **07**
(b) Draw the block diagram of IC 555 and discuss the function of trigger and control voltage pins. **07**
- Q.4** (a) Explain concept and operation of Washing Machines with necessary block diagram in detail. **07**
(b) Explain the principal and working of Thermocouple. Compare it with RTD. **07**
- OR**
- Q.4** (a) Explain SCR in Detail. **07**
(b) Explain the optocoupler/Isolator in details. Also explain one application. **07**
- Q.5** (a) What is combinational circuit? Explain any one combinational circuit with necessary circuit diagram in detail. **07**
(b) Explain architecture of 8051 with block diagram. **07**
- OR**
- Q.5** (a) Explain Karnaugh map representation with example. **07**
(b) Explain characteristic of UJT. Discuss UJT as a Relaxation Oscillator with circuit and waveforms. **07**
