

17563

11920

3 Hours / 100 Marks

Seat No.

--	--	--	--	--	--	--	--

- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any TEN of the following: **20****
- a) Define active and passive components.
 - b) List different types of Inductors.
 - c) Write colour code for resistor of value 4.7 K Ω .
 - d) Define Intrinsic and Extrinsic semiconductor.
 - e) Compare Inverting and Non-Inverting amplifier using OPAMP (any two points).
 - f) Draw circuit diagram of Non-Inverting amplifier.
 - g) Write two applications of PN junction diode.
 - h) Draw symbol of LED and LDR.
 - i) Define Transducer and Actuator.
 - j) Write applications of Photodiode (any two).
 - k) List the classification of control system.

P.T.O.

- l) Compare open loop and closed loop control system (any two points)
- m) State any two applications of open loop control system.
- n) List the electronic sensors and devices in blow room.

2. Attempt any FOUR of the following: 16

- a) List the types of resistor. State their specification.
- b) Explain level measurement using capacitive sensor.
- c) Explain the working of automatic textile control system.
- d) Draw the architecture diagram of 8051.
- e) Explain RAM type of memory with neat diagram.
- f) Explain the Yarn Evenness Tester using block diagram.

3. Attempt any FOUR of the following: 16

- a) List different types of capacitors. List any four specifications of capacitors.
- b) Compare conductor and Insulator (any four points)
- c) Draw the complete V-I characteristics of PN-junction diode.
- d) Explain displacement measurement using LVDT.
- e) Explain asynchronous up-counter with diagram.
- f) What is flip-flop? Write the truth table of J-K Flip-Flop.

4. Attempt any FOUR of the following: 16

- a) Draw full-wave rectifier circuit. Write its application.
- b) Draw block diagram of OPAMP and write the function of each block.
- c) List the different temperature sensors. Explain the working of any one.
- d) Explain in brief combined loop control system.
- e) Explain PLC with block diagram.
- f) Write any eight features of 8051 microcontroller.

- 5. Attempt any FOUR of the following:** **16**
- a) Explain application of OPAMP as differential amplifier.
 - b) Explain formation of 'P'-type semiconductor with diagram.
 - c) Explain working principle of strain gauge.
 - d) Differentiate between Analog and Digital electronics.
 - e) State the applications of tensile testing sensor in textile industry.
 - f) Explain the working of card auto leveller.
- 6. Attempt any FOUR of the following:** **16**
- a) Draw the characteristics of transistor showing different operating regions.
 - b) Explain the working principle of optocoupler.
 - c) Explain the basic working principle of pneumatic actuators.
 - d) Draw the symbol and truth table of
 - (i) AND gate
 - (ii) NOT gate
 - (iii) NAND gate
 - (iv) NOR gate
 - e) Convert the following
 - (i) $(34)_{10} = (?)_2$
 - (ii) $(91)_{10} = (?)_2$
 - f) Explain the working of automatic weft straightening with diagram.
-