Reg. No. : | | | | | | | | | | | |

J 3438

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2009.

Fourth Semester

Textile Technology

TT 1252 — ELECTRONICS AND INSTRUMENTATION

(Common to B.Tech. Textile Technology (Textile Chemistry))

(Regulation 2004)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Design a non–inverting amplifier with gain of 9.

2. Write a note on diode capacitances.

3. Draw Half adder circuit and its truth table.

4. What is sequential logic circuit? Give example.

5. The expected value of the voltage to be measured is 175 V. However the measurement is 173 V. Calculates its absolute error and relative accuracy.

6. Give two examples for resistive, capacitive and inductive transducers.

7. What are the types of strain gauges?

8. What are the advantages and disadvantages of magnetic disc storage?

9. Why is delay line used in CRO?

10. What is the need for gold junction circuit?

PART B — (5 × 16 = 80 marks)

11. (a) Explain the V–I characteristics of Bipolar Junction Transistor in CE configuration. (16)

Or

(b) Explain the function of the following circuits with necessary mathematical expressions using OP–AMP. (4 × 4 = 16)

(i) Differential amplifier

(ii) Summer

(iii) Integrator

(iv) Differentiator.

12. (a) (i) With a neat diagram explain ADC. (12)

(ii) What are the digital applications of signal conditioning? (4)

Or

(b) Design a MOD–10 Decade Counter using JK–Flip Flops. (16)

13. (a) With the necessary diagram explain the working principle and applications of LVDT. (16)

Or

(b) Write short notes on :

(i) Ballast circuit. (5)

(ii) Voltage Divider circuit. (5)

(iii) Bridge circuit. (6)

14. (a) (i) With neat diagrams, explain any two types of temperature sensors. (12)

(ii) Discuss the advantages and disadvantages of temperature sensors. (4)

Or

(b) Write short notes on :

(i) Indicating and recording devices. (8)

(ii) Proximity sensors. (8)

15. (a) With a neat diagram explain the working principle of TRIAC and DIAC. (16)

Or

(b) Explain in detail the computerized Data Acquisition and control in the textile processing industry. (16)