17563

15162

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****.*

Marks

1. Attempt **any five** : **20**

a) What are active and passive components ? State any two example of each.

b) Compare conductor and insulator (any four points).

c) State the need of bridges in signal conditioning circuits.

d) Give detail classification of types of control system.

e) Compare digital and analog electronics (any four points).

f) Explain in brief tensile testing method.

g) Draw the symbol of AND gate and OR gate and write their truth table.

2. Attempt **any two** : **16**

a) What is PN junction diode ? Draw the diagram of full wave rectifier and explain its working.

b) Draw and explain the construction and working of the following pressure sensors :
A) Bound on tube B) Bellows.

c) Draw the block diagram of PLC and explain the function of each block.

3. Attempt **any four** : **16**

a) Determine the value of resistor for following colour codes :
1) Red, black, brown, silver 2) Orange, blue, yellow, gold.

b) Explain intrinsic and extrinsic type of semi-conductors.

c) Describe how displacement is measured using LVDT.

d) What is open loop system ? Explain with suitable example.

e) What is flip flop ? Explain the working of JK flip flop with the help of truth table.

f) Explain the working of card autoleveller.

P.T.O.

Marks

4. Attempt **any four** : **16**

a) What is capacitor ? List its any two specification.

b) Draw the symbol of PNP transistor and explain its working.

c) Explain the active and saturation region of transistor with help of graph.

d) What is a thermocouple ? State its principle and working.

e) Explain the principle of automatic textile control system.

f) List any eight features of 8051.

5. Attempt **any four** : **16**

a) State the property of inductor. List the types of inductors.

b) Draw and explain the working of investing amplifier.

c) What is actuator ? Explain the principle of pneumatic actuation.

d) Explain in brief the concept of combined loop control system.

e) Describe the working principle 3-bit asynchronous up counter.

f) Explain the working of yarn evenness tester.

6. Attempt **any four** : **16**

a) How a transistor can be used as a switch ? Explain.

b) Draw and explain V-I characteristics of diode.

c) What is photo transistor ? Draw its symbol and state any two applications of it.

d) Convert the following decimal number into binary :

A) $[15]_{10}$ B) $[09]_{10}$.

and following binary number into decimal :

A) $[11011001]_2$ B) $[00111001]_2$.

e) Compare RAM and ROM memory (any four points).

f) Explain the mechanism of automatic weft straightening.
