Ist semester 2017 – 18

Computer science – II

Std: XI **Marks:50**

Date: **Time**:

Q.1.A) Select the correct alternative and rewrite the following: **4**

1) A rheostat is a _____ resister.

a) variableb) linearc) fixed d) non - linear

2) For PTC thermistor the resistance value _____ with increase in temperature.

a) Increases b) decreases c) equals d) none of these

3) In case of AND gate , if A is true and B is true then Y is _____.

a) true b) false c) high d)low

4) NAND gate can be achieved by connecting a NOT gate to _____ gate.

a) AND b) OR c) NAND d) NOR

B) Answer any two of the following: **6**

1) Differentiate between active and passive components.

2) Explain AND gate.

3) Write a note on resistor. Give its types.

Q.2.A) Answer any two of the following: **6**

1) Explain energy band diagrams for conductor, insulator and semiconductor.

2) Give significance of logic gates.

3) Explain a wire wound resistor with diagram.

B) **Answer any one of the following:** **4**

1) Find the value of resistance for the following. Draw table for the same.

Green, blue, orange silver

2) State and prove Demorgans theorem.(Any one)

Q.3.A)Answer any two of the following: **6**

1) Explain RC time constant.

2) Draw a diagram for the following equation using logic gates.

$Y = \overline{(A + B)} + (A.B)$

3) Explain three types of inductors.

B) Answer any one of the following: **4**

1) "NAND and NORare called universal building blocks". Explain

2).Explain any two types of non-electrolytic capacitors.

Q.4.A) Answer any two of the following: **6**

1) Differentiate between N type and P type semiconductors.

2) Write a short note on importance of ICs .

3) Explain EXOR gate.

B) Answer any one of the following: **4**

1) Explain transformer. Explain its principle of working

2)Solve the given equation and draw logic diagram for the simplified form using logic gates.

(A+B)(A+C)

Q.5.A) Answer any two of the following: **10**

1) What is a PN junction diode? Explain forward and reverse bias.

2) Explain decoder.

3) Explain 4:1 MUX.

OR

1) Explain full adder with diagram. Give its truthtable and symbol.

2)Explain charging and discharging of capacitors with diagrams. Draw respective graphs

.3) Explain Encoder with diagram.