T24(D)/T50(D)/T51(D)/T52(D)/TML033/EE/20121209

Time : 180 minutes **Marks : 80**

Instructions for the students :

1) **All** questions are **compulsory.**
2) Use of a nonprogrammable type of scientific calculator is allowed.
3) Draw neat diagrams wherever necessary.
4) Assume suitable data if necessary.

Section - A

1. a) Draw and explain the construction and basic operation of bipolar junction transistor. **10**

   b) Draw and explain the characteristics of TRIAC. **5**

   OR

   a) Explain in detail the biasing of diode with its characteristics. **10**

   b) Differentiate between extrinsic and intrinsic semiconductor. **5**

2. a) Draw and explain in detail the block diagram of regulated DC power supply. **10**

   b) What is biasing? Why it is needed in transistor circuit? **5**

   OR

   a) List the different types of filters used in rectifier circuit and explain the working of any one in detail. **10**

   b) Differentiate between series and shunt voltage regulator. **5**

3. Explain the term, doping of semiconductor in detail. **5**

4. Differentiate between LED and phototransistor. **5**

Section - B

5. a) With the help of one example, explain the complete procedure for binary to decimal conversion. **10**

   b) Draw and explain in detail the NOR gate operation. **5**

OR

   a) What is Karnaugh map? Explain in detail the use of K-map for simplifying two logical variables. **10**

   b) Give advantages and disadvantages of positive feedback. **5**

6. a) What is a flip-flop? Draw and explain the working of R-S flip-flop in detail. **10**

   b) Draw and explain the diagram of 3-bit synchronous counter. **5**

OR

   a) What is an encoder? Write a short note on decimal to BCD encoder. **10**

   b) List the different parts of microprocessor. **5**

7. Draw the tenth table and Boolean expression for all logic gates. **5**

8. Write a short note on counters. **5**

T03(D)/T05(D)/T06(D)/T07(D)/T24(D)/T50(D)/T51(D)/T52(D)/
TES-TML034/EE/20121211

Time : 180 minutes **Marks : 80**

Instructions for the students :

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Section - A

1. a) Explain the test procedure to determine polarities of single phase transformers. **10**

b) Define the following terms : **5**

i) Voltage ratio ii) Transformation ratio

iii) Step up transformer iv) Step down transformer

v) Current ratio

OR

a) Write a short note on isolation transformer. **10**

b) Why transformer rating is always in kVA? **5**

2. a) Derive emf equation of DC generator. **10**

b) What are the functions of commutator and brushes? **5**

OR