

ws-Con-2012

Con. 10884-12.

KR-7442

(3 Hours)

[Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.  
 (2) Solve any **four** questions from the remaining.  
 (3) Assume **suitable** data wherever **necessary** and justify the **same**.

1. Solve any five of the following : 20
    - (a) Once SCR is triggered , the gate loses its control. Why?
    - (b) Explain why cyclo converters are suitable for low frequency only?
    - (c) Why open loop configuration of OPAMP not used for linear applications?
    - (d) Design a circuit using basic gates to implement the following Boolean equation.  
 $Y=AB+\bar{A}B$
    - (e) Write a program for loading a number 29H in register C and then displaying the same number in output port 01.
    - (f) Why RC triggering is preferred over Resistance triggering process?
  2. (a) Explain single phase full wave half controlled bridge rectifier (asymmetrical configuration) with the help of circuit diagram and waveforms. Also explain why a separate FWD is not required in this case. 10  
 (b) Explain the regenerative action of SCR with the help of two transistor analogy. 10
  3. (a) Explain the working of Modified Series Inverter with the circuit (which has two capacitors and two inductors) and waveforms. Also explain its advantage over simple series inverter. 10  
 (b) What is the difference between Natural and Forced commutation? Explain any two forced commutation techniques of SCR with waveforms. 10
  4. (a) Explain any two circuits using SCR for the speed control of single phase induction motor. 10  
 (b) Explain with block diagram the armature control method for speed control of a DC shunt motor. 10
  5. (a) Discuss the over load and over voltage protection of DC Motor using SCR. 10  
 (b) Explain a comparator circuit using OPAMP. 05  
 (c) Draw a neat circuit diagram of Differentiator using OPAMP and derive the input output voltage relation. 05
  6. (a) Realize Ex-OR gate by 1) Basic gates 2) NAND gate 10  
 (b) Which gates are called as Universal gates? Why? 05  
 (c) Explain DeMorgan's theorem. 05
  7. (a) Explain the architecture of 8085 Microprocessor with block diagram. 10  
 (b) Explain 555 timer as monostable multivibrator. 10
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