

“Please check whether you have got the right question paper.”

- N.B** i) Question no.1 & Q. No. 6 are compulsory. Solve another four questions taking two from each section
 i) Assume suitable data wherever needed.

SECTION-A

- Q.1 Solve any five questions. 10
 a) Draw truth table for logic expression.

$$y = \overline{\overline{A}B} + \overline{A}B$$

 b) Verify the commutative law for AND operation.
 c) Draw 4 variable k-maps.
 d) Convert following sop expression to pos from $Y = AB + BC + C$.
 e) Realize following expression by using NOR gates only $Y = (AB + BC). \overline{A}$
 f) Compare digital and analog signals.
- Q.2 a) Minimize the following logic expression using KMAP and implement reduced expression using NOR gate. $F(A, B, C, D) = \pi M (2, 7, 8, 9, 10, 12)$ 08
 b) Design 10 bit even parity checker by using IC 74180. 07
- Q.3 a) Design full adder using 3 lines to 8 line decoder. 07
 b) Minimize the following expression by using Quine Mc Cluskey method-
 $f(A, B, C, D) = \sum m (1, 3, 5, 8, 9, 11, 15) + d(2, 13)$ 08
- Q.4 a) Design gray to binary code converter. 07
 b) Design full adder using MUX. 08
- Q.5 a) What do you mean by PLD? Compare PAL and PLA. 07
 b) Which logic gates are universal gates? Why? Explain in detail. 08
- SECTION -B
- Q.6 Solve any five questions. 10
 a) What is ADC?
 b) What are the types of shift register?
 c) Write any four applications of digital counter.
 d) How many flf are needed to design MOD –II ripple counter.
 e) Draw the logic symbol of clocked S-R flf. Write its truth table.
 f) Write any four applications of shift register.
 g) What do you mean by edge triggered flf?
- Q.7 a) Explain the working of universal shift register IC 7494. 07
 b) Design and explain working of MOD-5 ripple counter. 08
- Q.8 a) Draw the diagram for 4 bit serial In serial out right shift. Explain it. 08
 b) Explain implementation of weighted resistor DAC. 07

- Q.9 a) Design 4 bit synchronous counter using D type flf. 08
b) Explain dual slop ADC. 07
- Q.10 a) Convert i) S-R flf to D type flf ii) J-K flf to T type flf. 08
b) Compare synchronous and asynchronous counters. 07