Q. P. CODE:37896

(3Hours) **(TOTAL MARKS:80)**

Please check whether you have the right question paper.

N.B.:
1) **Questions No.1 is compulsory.**
2) **Attempt any three from remaining question.**

Q.1 Attempt the following **[20]**
a) Verify De Morgan's Theorem.
b) Design Half adder circuit
c) Convert JK Flip Flop
d) Compare synchronous and asynchronous counter
e) Explain Noise Margin and fanout of digital IC's

Q.2 a) Convert. **[10]**
i) $(1110)_2$ to decimal
ii) $(1085)_{10}$ to octal
iii) $(34FB)_{16}$ to Binary
iv) $(5890)_{10}$ to Hexadecimal
v) $(123)_6$ to decimal

b) Prove the following and draw the logic circuit. **[5]**
$AB + \bar{A}C = AB + \bar{A}C + BC$

c) Design an exclusive OR operation using all NOR gates. **[5]**

Q.3 a) Minimize the following functions using K-map and implement as a SOP using AND/OR gates. $F = \sum (2, 3, 4, 5, 12, 13)$ **[10]**
b) Design 4 bit binary to Gray code converter. **[10]**

Q.4 a) Design a synchronous MOD 4 updown counter using JK Flip Flop. **[10]**
b) What is Shift Register? Explain the working of 4-bit bidirectional Shift Register. **[10]**

Q.5 a) Realize the following using 16:1 MUX and only one 8:1 MUX **[10]**
$F(A, B, C, D) = \sum m (2, 3, 5, 7, 9, 11, 15)$
b) Perform following operation:- **[5]**
$(29)_{10}$-$(33)_{10}$ using 2's complement method.
c) Explain the following term with respect to asynchronous sequential circuits. **[5]**
i) Fundamental mode ii) Pulse mode iii) Primitive state iv) Cycle and Races.

Q.6 Write short notes on :- (any four) **[20]**
a) PAL and PLA
b) Dynamic RAM
c) ECL family
d) DEMUX
e) ASCII Codes.

Subject: Correction in Program Code : T1733 - S.E. (SEM. III) (REV.-2017) (Choice Base) INSTRUMENTATION ENGG. / T606 - Digital Electronics\tQ.P Code : 37896

From: University of Mumbai<support@muapps.in> on Sat, 02 Jun 2018 15:38:02

To: <exam_kgce2010@rediffmail.com>

University of Mumbai

Correction in **Program Code : T1733** - S.E. (SEM. III) (REV.- 2017) (Choice Base) INSTRUMENTATION ENGG. / **T606 - Digital Electronics Q.P Code : 37896**

Read As,

Q.1. C) Convert JK Flip Flop to T Flip Flop.

University of Mumbai
https://muapps.in
support@muapps.in
022-26534263 / 022-26534266
Mon-Fri, 10am - 5pm