Total No. of Printed Pages:2

SUBJECT CODE:- 230
FACULTY OF ENGINEERING AND TECHNOLOGY
S.E. (EEP/EE/EEE) Examination Nov/Dec 2015
Analog & Digital Circuits
(Revised)

[Time: Three Hours] **[Max. Marks: 80]**

"Please check whether you have got the right question paper."

N.B i) Q.No.1 and Q.No.6 are compulsory.
ii) Solve any two questions from remaining for each section.

Section A

Q.1 Solve any five from following 10
a. $(1010101)_2=(?)_{16}$
b. Find 2's compliment of $(11001100)_2$
c. Convert following from gray to binary.(110110)
d. $(1010111)_2+(110011)_2=?$
e. Explain AND & OR gate.
f. $(134)_{10}=(?)_8$

Q.2 a) Construct AND, OR & NOT logic using NAND gate. 08
b) Explain the working of multiplexer 07

Q.3 Simplify following equation using K map. 15
a. $Y = BCD + A\overline{C}D + \overline{A}B\overline{C} + \overline{A}BD$
b. $Y = B\overline{C}D + BCD + \overline{B}C\overline{D} + \overline{B}CD$
c. $Y = ABCD + \overline{A}B\overline{C}\,\overline{D}$

Q.4 a) Explain memory devices in detail 08
b) Differentiate SOP and POS 07

Q.5 a) Explain ring counter 08
b) Explain Master –slave J K flip-flop in detail. 07

Section-B

Q.6 Solve any five from following 10
a) Define load line
b) Draw symbol of PNP and NPN BJT.
c) Define forward active mode/biasing/cut off made BJT
d) Define avalanche breakdown
e) Define current gain/voltage gain of BJT
f) Draw pin diagram of IC555/Slew rate of opamp/CMRR/Pin diagram of IC741

Q.7 a) Explain ratings of BJT 08
b) Explain common emitter configuration of BJT 07

Q.8 a) Explain Op-Amp parameter in detail 08
b) Explain Astable multivibrator using IC55 07

Q.9 a) An op Amp has CMRR of 90dB. If its differential voltage gain is 30000 calculate common mode gain 05

b) A certain transistor has $\alpha = 0.98, ICO = 5\mu A \; and \; IB = 100\mu A$. Find the values of collector and emitter currents. 05

c) Explain inverting amplifier 05

Q.10 Write a short note on any three 15

a. Schmitt trigger
b. LM 317
c. First order high pass filter
d. FET.