

1058

B.E., Second Semester
EC-201: Basic Electronics
(2012-13)

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, selecting atleast two questions from each Part.

X-X-X

PART - A

1. Define and differentiate the followings on the basis of their working principle and applications:
 - PN junction diode
 - Zener diode
 - Varactor diode
 - Light emitting diode

(10)
2. (a) What is transistor? Explain its amplifying action in CE configuration. (5)
 (b) A transistor has $I_{CBO}=48 \text{ nA}$ and $\alpha=0.992$
 - i) Find β and I_{CEO}
 - ii) Find its collector current when $I_B=30 \mu\text{A}$

(5)
3. (a) Why should FET be preferred over BJT? Discuss on the basis of their working principles. (5)
 (b) Explain the working of Op-Amp as scale changer. (5)
4. (a) Explain the working of full wave bridge rectifier. (5)
 (b) Write short note on 'Characteristics of an ideal Op-Amp'. (5)

PART - B

5. (a) Perform the following conversion:- (5)

| | | |
|--------------|---------------|------------|
| $(143)_8$ | \rightarrow | $()_{16}$ |
| $(10010)_2$ | \rightarrow | $()_{10}$ |
| $(489)_{10}$ | \rightarrow | $()_8$ |

(b) How can an amplifier be converted into an oscillator. Discuss necessary conditions. (5)
6. (a) Explain the truth table of R-S flip flop. Convert it into J-K flip flop. (5)
 (b) Define transducer. Explain how the resistive transducer can be used for displacement measurement. (5)
7. (a) Draw block diagram of digital data acquisition system and explain its working. (5)
 (b) Compare positive and negative logic. Define universal logic gates and describe their truth tables on the basis of negative logic. (5)
8. Write technical notes on the followings: (10)
 - (a) Boolean algebra
 - (b) Digital counters.