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B. Tech. 2nd Semester Examination, May-2013

BASICS OF ELECTRONICS

Paper-ECE-101-F

Time allowed : 3 hours]

[Maximum marks : 100

*Note : Attempt five questions in total, at least one question from each section. Question No. 1 is compulsory. All questions carry equal marks.*

1. (a) Define drift and diffusion current. 3
- (b) What is Barkhausen criteria for Oscillators ? 3
- (c) What is -ve feedback ? Give its advantages. 3
- (d) What is Zener breakdown ? 3
- (e) Convert  $(F2A4)_{16} = (?)_8$  3
- (f) Give the truth table of KNOR gate. 3
- (g) Give the truth table of SR flip flop. 2

#### Section-A

2. (a) Differentiate between N-type and p-type semiconductor and explain P-N Junction biasing. 10
- (b) Explain the breakdown phenomenon in P-N junction diode. 10

3. (a) Classify the different type of Amplifiers. Also explain the principle of Amplification. 10
- (b) Discuss the frequency response of RC-coupled Amplifier with different frequencies ranges. 10

### Section-B

4. (a) Explain, with neat diagram, working of a Wein's bridge oscillator. 10
- (b) Classify the different type of oscillators and explain them in brief. 10
5. (a) Explain how Op-Amp acts as inverting and non-inverting Amplifier. 10
- (b) Differentiate between inverter and UPS. 10

### Section-C

6. (a) Convert following :
- (i)  $(B85)_{16} = ( )_{10}$
- (ii)  $(101011)_2 = ( )_{10}$
- (iii)  $(540)_{10} = ( )_8$
- (i)  $(628)_8 = ( )_2$  10
- (b) Realize AND and OR gate using NOR and NAND gates. 10

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7. (a) What are universal gates ? Why they are so called ? 10
- (b) Explain the block diagram of function generator. 10

**Section-D**

8. (a) Differentiate between transmitting and refractive type LCD. Write advantages of LCD display. 8
- (b) What is LED ? Discuss its construction and working of LED. Give its advantages and disadvantages. 12
9. Write a short note on :
- (a) Extrinsic semi conductor
- (b) Voltage regulator. 20

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