B. Tech. 1st Semester F-Scheme Examination,

December–2014

BASICS OF ELECTRONICS

Paper–ECE-101-F

Time allowed : 3 hours] *[Maximum marks : 100*

Note : *(1) Attempt a total of **five** questions.*

*(2) **Question No. 1** is **compulsory**. **One** question to be attempted from each unit.*

(3) The sub parts of questions should be attempted together only.

1. (a) Explain conditions for oscillation. 2

(b) Characteristics of Ideal Op Amp. 3

(c) Define flip flops and their purpose. 4

(d) Difference between Diffusion and Drift current. 4

(e) Difference between ON-line and OFF line UPS. 4

(f) Applications of seven segment display. 3

Unit–I

2. Draw the diagram of P N junction and explain its behaviour in : 20

(a) Open circuit.

(b) Forward bias.

(c) Reverse bias.

3. (a) Draw the circuit diagram of RC coupled amplifier and explain its working principle and frequency response. 15

(b) Why negative feedback is essential for amplifiers ? 5

Unit–II

4. (a) Explain working of crystal oscillator. 10

(b) Explain briefly Applications of Op Amp. 10

5. (a) Explain working of voltage regulators and their applications. 10

(b) Describe working principle of Inverter and its applications. 10

Unit–III

6. (a) Convert the following : 10

(i) $(8AB4.01)_{16}$ into Octal.

(ii) $(754.32)_{8}$ into Decimal.

(iii) $(1094.45)_{10}$ into Hexadecimal.

(iv) (1011001100) into Decimal.

(b) Realize all basic gates using NAND gates. Also write the truth table. 10

7. Write short notes on : 10×2

(a) Digital Multi meter

(b) Signal generator.

Unit–IV

8. (a) Draw the diagram of seven segment display and write the truth table. 10

(b) Explain working of Dynamic scattering type LCD display. 10

9. Write short notes on : 10×2

(a) Working principle and advantages of LED.

(b) Advantages and disadvantages of LCD display.