

Roll No. ....

## OLE-3058

**B. Tech. 3rd Semester (ME)**

**Examination – April, 2021**

**BASICS OF ELECTRONICS ENGG.**

**Paper : ESC-ECE-207-G**

*Time : Three Hours ]*

*[ Maximum Marks : 75*

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Attempt *five* questions in all including Question No. 1 which is *compulsory*. Select *one* question from each Unit. All questions carry equal marks.

1. (a) Define diffusion current. 6 × 2.5
- (b) Why frequency response is required ?
- (c) Draw pin diagram of IC-741.
- (d) Define under damping oscillations.
- (e) Which are universal gates and why ?
- (f) What is communication ?

## UNIT – I

2. (a) Define P-N Junction. Explain how potential barrier is formed in P-N Junction. 8  
(b) Explain the working of full wave rectifier. 7
3. (a) Draw and explain the block diagram of IC-78XX regulator series. 7  
(b) Draw and explain I/O and transfer characteristics of Bipolar Junction Transistor. 8

## UNIT – II

4. (a) Draw and explain the block diagram of operation amplifiers. 10  
(b) List out the characteristics of ideal Op-Amp. 5
5. Write short note on application Op-Amp : 15  
(a) Summing Amplifier  
(b) Integrator

## UNIT – III

6. (a) Explain how IC-555 timer act as a mono-stable multi-vibrator. 8  
(b) What is positive feedback ? Where this feedback is used ? List out importance of this feedback. 7
7. (a) Draw and discuss the RC-phase shift oscillator. 8  
(b) List out the advantages, and application of a crystal oscillator. 7

## UNIT – IV

8. (a) Realize the boolean expression using gates 10  
$$y = \overline{ABC} + \overline{A}BC + A\overline{B}C + ABC$$
- (b) Explain race round conditions in flip-flop. 5
9. (a) Draw and explain block diagram of communication system. 10
- (b) Draw and explain the various transmission media used in communication. 5
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