

*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.*

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

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|-----------|--|-----------------------|
| <b>1.</b> | (a) Define diffusion current.            | <b><i>6 × 2.5</i></b> |
|           | (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

$$y = \overline{ABC} + \overline{AB}\bar{C} + \overline{A}\overline{B}C + ABC$$

- (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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