

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.

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|-----------|---|----------------------------------|
| 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

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

- (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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