

9. (a) Explain the Amplitude Modulation (AM) with the help of suitable block diagram. 10

- (b) Explain the characteristics of wired and wireless transmission medium used in communication. 5

Roll No.

3058

B. Tech. 3rd Semester (ME)
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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, selecting *one* question from each Unit. Question No. 1 is *compulsory*. All questions carry equal marks.

1. (a) What is a PN junction diode ?
- (b) What do you mean by damping oscillations ?
- (c) What is the function of IC-7805 ? Draw its pin diagram.
- (d) What is the need of feedback in amplifiers ?
- (e) What are universal gates and why ?
- (f) Draw the truth table of a half adder ckt. and its logic diagram.
2.5 × 6 = 15

UNIT - I

2. (a) What are intrinsic and extrinsic semiconductors? 5

(b) What is a zener diode ? How it is used as a voltage regulator? 7.5

3. (a) Draw and explain the working of a half wave rectifier. 5

(b) Find out the expression for rms value and average value of dc voltage obtained from the output of a full wave rectifier. 5

UNIT - II

4. Draw the $\Delta V/I$ diagram using op-amp for : 15

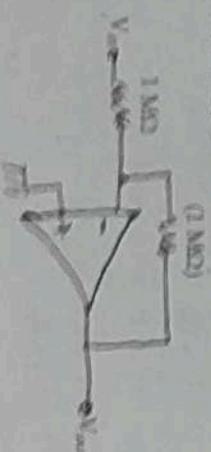
(a) Integrator

(b) Differentiator

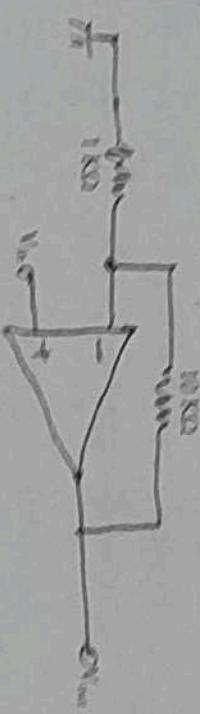
Also find the expression for the o/p obtained across integrator and differentiator circuit drawn above.

5. (a) What are the effects of negative feedback in case of op-amp? 5

(b) Find out the o/p voltage of the amplifier o/p shown below. 5



(c) Find out the voltage gain of the o/p shown below: 5



UNIT - III

6. (a) What is RC-phase shift oscillator? Draw the circuit diagram. 10

(b) What are the advantages and disadvantages of phase shift oscillator? 5

7. (a) What is a crystal oscillator? Draw its equivalent circuit. 8

(b) What are the advantages and applications of a crystal oscillator? 7

UNIT - IV

8. (a) What is race around conditions in flip-flop? 5

(b) Explain the working of serial in serial out shift register with the help of suitable diagram. 10