

**3041**

**B. Tech. 3rd Semester (EE)**  
**Examination – March, 2021**

**ANALOG ELECTRONICS**

**Paper : PCC-EE-205-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) Explain the term cut in voltage of a diode. 2.5
- (b) Why silicon diode is more popular than the Ge diode ? 2.5
- (c) Define the term transconductance. 2.5
- (d) Define clipping circuits. 2.5
- (e) Explain in brief the applications of EMOSFET. 2.5

- (f) What do you mean by difference amplifier ? 2.5

### **UNIT – I**

2. (a) Explain in detail the VI characteristics of a diode. 8  
(b) Explain the working of zener diode. 7
3. (a) Explain the working of BJT in common emitter configuration. 10  
(b) Explain in brief BJT act as a switch. 5

### **UNIT – II**

4. Explain in detail the construction and operation of n channel D MOSFET. 15
5. (a) Discuss how MOSFET act as an amplifier ? 8  
(b) Explain the working of small signal model of MOSFET. 7

### **UNIT – III**

6. Explain the effect of open loop gain and bandwidth on circuit performance of operational amplifier. 15
7. (a) Derive an expression of inverting and non inverting configuration of operational amplifier. 8  
(b) Explain the role of feedback in the amplifiers. 7

## UNIT – IV

8. Explain in detail the following :

- (a) Precision amplifier . 8
- (b) Lead and lag compensator using op-amp. 7

9. (a) Explain the analog to digital conversion using operational amplifier. 8
- (b) How operational amplifier can be used as voltage regulator ? 7
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