

**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.

*Any five*

- (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**

