

B.Tech. (EE) 4th Semester F-Scheme

Examination, May-2019

ANALOG ELECTRONICS

Paper-EE-202-F

Time allowed : 3 hours]

[Maximum marks : 100

Note : Question No. 1 is compulsory. Attempt one question from each section.

- 1. (a) What is importance of P-N Junction diode ? 4
- (b) Differentiate between BJT and MOSFET. 4
- (c) What is function of BJT ? 2
- (d) Define PSRR and CMMR. 4
- (e) List out the advantage of -ve feedback 4
- (f) Why differential pair configuration is required in transistors ? 2

Section-A

- 2. (a) What is a P-N Junction ? Explain the formation of potential barrier of a P-N junction. 10
- (b) Explain the following breakdown mechanisms occurring in junction : 10
 - (i) Avalanche breakdown
 - (ii) Zener Breakdown

- 3. (a) Discuss the different multiplier circuits with neat and clean diagrams. 10
- (b) Find the Forward current for germanium diode at room temperature 27°C when voltage across it is 0.5 volt and compare with current when temperature rises to 80°C. 10

Section-B

- 4. (a) Explain the operation of MOSFET transistor in Enhancement mode. 10
- (b) Draw and explain the frequency respond of common source (CS) amplifier. 10
- 5. (a) Draw and explain the small signal model of MOSFET. 10
- (b) Explain the different biasing circuits of MOSFET amplifiers. https://www.haryanapapers.com 10

Section-C

- 6. (a) Discuss the different configuration of Transistor and their operation. 12
- (b) A germanium transistor with $\alpha = 0.98$ gives a reverse saturation current $I_{CBO} = 15\mu A$ in CB configuration. When transistor is used in CE configuration with a base of $0.22\mu A$. Calculate the Collector current. 08

7. (a) Draw and explain the high frequency model of CE Amplifier. 10
- (b) Explain the voltage divider biasing circuit used in transistors. 10

Section-D

8. (a) Draw and explain the Pin diagram of op-Amp IC. 10
- (b) Discuss the different topologies of feedback Amplifier. 10
9. Write a short note on : 20
- (a) Difference Amplifier
- (b) MOSFET differential pair
- (C) op-Amp as Inverting Amplifier

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