



Reg. No. :

Name :

**Combined First and Second Semester B.Tech. Degree
Examination, March, 2018
(2013 Scheme)**

13.109 : BASIC ELECTRONICS ENGINEERING (BCEHMNPSU)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **2** marks :

1. Distinguish between avalanche breakdown and zener break down.
2. Draw the circuit diagram of N-P-N transistors with proper biasing voltages. Indicate the reference directions for current and reference polarities for the voltages.
3. Define the terms :
(i) trans conductance (gm) (ii) ac drain resistance (rd).
4. What is the effect of negative feedback on the output noise level of an amplifier ?
5. Define efficiency of a power amplifier. List the efficiency of class A, AB, B and C power amplifiers.
6. Draw the waveform of an AM carrier modulated by a single frequency modulating signal. Define its modulation index.
7. What do you mean by quantisation error ?
8. Differentiate geo-stationary and geosynchronous satellites.
9. Explain single mode and multimode optical fibres.
10. What are the features of WLL ? **(10×2=20 Marks)**

PART – B

Answer **one** question from **each** Module. **Each** question carries **20** marks :

Module – I

11. a) Sketch typical BJT NPN common base input and output characteristics. Explain the shape of the characteristics.
b) Prove that NAND gate is a universal gate.

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12. a) Draw and explain the working of enhancement type n-channel MOSFET.
b) What is barrier potential ? How does biasing affect barrier potential ?
c) Draw a JK flipflop. Write its truth table. How is race around avoided in JK flip flops ?

Module – II

13. a) Draw and explain the working of bridge rectifier compare it with centre tapped full wave rectifier.
b) Explain the construction and principle of working of a Linear Voltage Differential Transformer (LVDT). Explain how the magnitude and direction of core displacement is detected in LVDT.
14. a) Draw the block diagram of a public address system and explain.
b) Draw the block diagram of a digital multimeter and explain.

Module – III

15. a) What do you mean by frequency modulation ? Sketch a typical FM wave. Draw and explain how FM can be demodulated.
b) Draw and explain the block diagram of a pulsed radar.
16. a) Compare analog and digital data transmission. How is an analog signal converted to PCM signal ?
b) Explain the principle of GPS. How does GPS help in locating a vehicle on road ?

Module – IV

17. a) Explain how light is transmitted through an optical fibre. List the requirements of source and detector used in fibre communication.
b) Draw the block diagram of colour television. Give the function of each sub block.
18. a) Draw the structure of Laser diode and explain how population inversion is achieved.
b) Explain the principle of CDMA. What is its advantage ? **(4×20=80 Marks)**