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Name.....

Reg. No.....

**THIRD SEMESTER B.TECH. (ENGINEERING) DEGREE  
EXAMINATION, DECEMBER 2009**

**CS/IT 04 304—BASIC ELECTRONIC ENGINEERING**

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

- I. (a) Draw and explain energy band diagrams of Insulator, semiconductor and conductor.  
(b) Differentiate Zener diode from PN junction diode.  
(c) Explain the principle of PNP biasing.  
(d) Explain the terms used in Multi-stage amplifiers.  
(e) Define and explain Harmonic distortion  
(f) State and explain Barkhausen criterion for oscillators.  
(g) Explain the characteristics of a practical Op-amp.  
(h) Give an account on 'Analog computation'

(8 × 5 = 40 marks)

- II. (a) Explain the construction and amplifying action of transistors.

Or

- (b) Explain in detail the V-I characteristics of the following :—

- |               |           |
|---------------|-----------|
| 1 Zener diode | (5 marks) |
| 2 FET.        | (5 marks) |
| 3 UJT.        | (5 marks) |

- III. (a) Draw Op-amp FET amplifier and explain with its equivalent circuit obtain expressions of  $A_v$  and  $A_{v_f}$ .

Or

- (b) Draw a 2 stage RC coupled amplifier and explain its principle in detail.

- IV. (a) Differentiate LC oscillator from RC oscillator. Explain the difference.

Or

- (b) Write short notes on :

- |                         |           |
|-------------------------|-----------|
| 1 Astable Multivibrator | (7 marks) |
| 2 Resonance.            | (8 marks) |

Turn over

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V. (a) Explain the applications of Op-amp as :

1 Zero-crossing detector

(7 marks)

2 Precision Rectifier.

(8 marks)

Or

(b) Draw Op-amp triangle wave generator and explain its principle of operation.

[4 × 15 = 60 marks]

