

Code.No: RR311202

RR

SET-1

**III B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010**  
**COMMUNICATION THEORY**  
**(INFORMATION TECHNOLOGY)**

**Time: 3hours****Max.Marks:80**

**Answer any FIVE questions**  
**All questions carry equal marks**

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- 1.a) An AM transmitter radiates 4 KW with carrier unmodulated and 10 KW when modulated. Find the modulation index.
- b) Define AM and DSB-SC modulation. Compare them.
- c) What are the advantages of modulation? [16]
- 2.a) Explain AM generation using square law modulator?
- b) Discuss about the generation of VSB modulation. [8+8]
3. Draw the circuit for rectifier detector and explain its operation? Draw the necessary waveforms? [16]
- 4.a) Define frequency modulation and phase modulation and compare them.
- b) In an FM system  $f_m$  is 1.3 KHz and modulating voltage is 4V, the modulation index is 0.7. Find the maximum deviation. What is the modulation index when the modulating frequency is reduced to 1 KHz and the modulating voltage is increased to 6 V. [8+8]
- 5.a) Explain the generation of FM using direct method?
- b) State Carson's rule for finding the bandwidth? [8+8]
- 6.a) Explain the ratio detector for FM demodulation? Draw the necessary diagrams?
- b) Compare ratio detector with phase discrimination methods? [8+8]
7. Derive the expression for SNR in double sideband suppressed carrier system?[16]
- 8.a) What is meant by threshold effect in FM?
- b) Derive the expression for noise figure in FM and PM? [8+8]

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SET-2

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**(INFORMATION TECHNOLOGY)**

**Time: 3hours****Max.Marks:80**

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SET-3

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**(INFORMATION TECHNOLOGY)**

**Time: 3hours****Max.Marks:80**

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SET-4

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**COMMUNICATION THEORY**  
**(INFORMATION TECHNOLOGY)**

**Time: 3hours****Max.Marks:80**

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