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B. E. (Fifth Semester) Examination, Nov.-Dec. 2016

(New Scheme)

(IT Engg. Branch)

PRINCIPLES of COMMUNICATION SYSTEM

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : *Attempt all questions. Part (a) is compulsory from each questions. Attempt any two parts from (b), (c) and (d). State assumption clearly (if any).*

1. (a) Define the term modulation index for AM. 2

   (b) Determine the percentage power saving when the carrier wave & one of the sidebands are suppressed in an AM wave modulated to a depth of : 7

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   (i) 100%, &

   (ii) 50%

   (c) Explain the square law diode modulation & demodulation method for AM generation. 7

   (d) Discuss any one generation method of SSB-SC modulation. Also mention the bandwidth requirement for SSB-SC signal. 7

2. (a) Determine the modulation index m_f of an FM signal which is being broadcast in the 88-108 MHz band. This FM wave has a carrier swing of 125 kHz. 2

   (b) Explain the Armstrong method for the generation of wideband FM. Also enlist the advantages of the same. 7

   (c) Compare the FM modulation & PM modulation atleast at 5 points. 7

   (d) What is the basic principle of FM Detectors? Explain any one method of it. 7

3. (a) What do you mean by Aperture effect? 2

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(b) State & prove sampling theorem in time domain. 7

(c) What do you mean by synchronization in PAM systems? 7

(d) What is Granular Noise? Write a short note on slope overload distortion. 7

4. (a) List out the advantages & disadvantages of MSK over QPSK. 2

(b) Explain the principle of Binary Phase Shift Keying. Compare it with Differential Phase Shift Keying. 7

(c) What is the advantage of gray coding of the QPSK system? What is the advantage of differential encoding of I/P to QPSK system? 7

(d) Draw the block diagram of DPSK modulator & explain how synchronization problem is avoided for its detection. 7

5. (a) What is Dispersion? 2

(b) Draw the schematic block diagram of satellite communication & also discuss the role of Transponders. 7

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(c) What are the basic blocks of fiber optic communication. Explain in brief. 7

(d) How many losses are possible in optical fiber? Discuss any two from the same. 7