R07

Code: R7220406

B.Tech II Year II Semester (R07) Supplementary Examinations December/January 2015/2016

ANALOG COMMUNICATIONS

(Electronics & Communication Engineering)

(For 2008 regular admitted batch only)

Time: 3 hours Max. Marks: 80

Answer any FIVE questions

All questions carry equal marks

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1 (a) How do you generate AM signal using switching modulator? Explain with suitable expression.
(b) The antenna current of an AM transmitter is 8 A, if only the carrier is sent, but it increases to 8.93 A if the carrier is modulated by a single sinusoidal wave. Determine the percentage modulation. Also find the antenna current, if the percent of modulation changes to 0.8.

2 (a) Explain the principle of the Costas receiver.
(b) What is the power content of the DSC-SC signal if, AM signal that has a percentage modulation 85% and the total power is 1200 watts?

3 Define the wave form of SSB-SC signal with large carrier and how can you detect this SSB-SC signal having large carrier.

4 Determine the frequency deviation Δf and carrier swing for a frequency modulated signal, which has a carrier frequency of 100 MHz and whose upper frequency is 100.007 MHz when modulated by a particular modulating signal or wave. Also find the lowest frequency reached by the frequency modulated wave.

5 (a) What is threshold in FM systems? Explain a mechanism by which threshold can be improved.
(b) What is the purpose of pre-emphasis & de-emphasis filtering? Explain the filtering process with suitable sketches.

6 (a) Explain linear diode detector with capacitor filter and simple AGC.
(b) Write short notes on plate modulated class C amplifier.

7 (a) Explain the working of TRF receiver with the help of block diagram.
(b) Explain the concept of double spotting.

8 (a) Explain about the generation and detection of the Flat-Top pulse amplitude modulated signal.
(b) For a pulse amplitude modulated transmission of voice signal having maximum frequency equal to 3KHz, calculate the transmission bandwidth. It is given that the sampling frequency is 8 KHz and the pulse duration 0.1 times to its sampling period.

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