



COMMUNICATION SYSTEMS (EE-391)
FINAL TERM EXAMINATION – SPRING 2018

Time Allowed: 2hrs

Max Marks: 50

DIRECTIONS:

1. *Be clear and precise in your answers.*
2. *No sharing of calculators or any helping material is allowed during exam.*

Q: No. 1: Define the following entities.

(2x5)

- a) AM
- b) Carrier
- c) Angle Modulation
- d) VSB
- e) Suppressed Carrier

Q: No. 2:

(2+8)

- a) What will be the band width of a signal if it is formatted from a base signal of 2-kHz with a carrier of 24-kHz, using AM.
- b) Write the DSB-SC and DSB+C equation in time and frequency domain for the above modulated wave, considering that the carrier amplitude is **A** and message amplitude is 1.

Q: No. 3:

(5+5)

- a) What is the function of VCO in PLL? How its gain is controlled?
- b) The synchronization of locally generated carrier is tedious job. How can it be eliminated using demodulation techniques?

Q: No. 4: Certain FM transmitter wants to send digital audio data of 44.1-kHz.

(5+5)

- a) What will be the occupied bandwidth of the signal if the maximum change in frequency w.r.t message frequency is 0.2?
- b) What type of bandwidth utilization is done in the above transmission?

Q: No. 5: What is QAM? How can Hilbert transform help us achieving it?

(3+7)

THE END