ROLL NO:	

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY, BENGALURU

SCHOOL OF ENGINEERING

Weightage: 20 % Max Marks: 40 Max Time: 1 hr. Monday, 24th September, 2018

TEST –1

Odd Semester 2018-19 Course : **ECE 210 Analog Communication** V Sem. ECE

Instruction:

(i) Read the question properly and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and Non-programmable calculators are permitted.

Part A

(3 Q x 4 M = 12 Marks)

1. Define Modulation, Amplitude modulation, frequency modulation, phase modulation:-
2. Calculate the length of an antenna required if frequency of the signal to be radiated is 15KHz and 1MHz:-
3. Draw the block diagram of Communication system?

Part B

(2 Q x 8 M = 16 Marks)

4. Derive the expression for $\mu a = \frac{Amax-Amin}{Amax+Amin}$ and μ_{at}= sqrt(μ_1^2+ μ_2^2)
5. Explain the generation of AM wave using square law modulator.

Part C

(1 Q x 12 M = 12 Marks)

6. An unmodulated signal 40 cos($2\pi 500x10^3$ t) volts is amplitude modulated by an audio wave [20 cos 4($2\pi 500t$)+10 cos 6($2\pi 500t$)]V. Draw spectrum of Carrier, modulating signal and modulated signal. Calculate power in each sideband, if the antenna resistance is 100Ω. Find the efficiency of the modulator.

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TEST 2

Odd Semester: 2018-19 | **Date**: 27 November 2018

Course Code: ECE 210 | **Time**: 1 Hour

Course Name: Analog Communication | **Max Marks**: 20

Branch & Sem: ECE & V Sem | **Weightage**: 20%

Instructions:

(i) ***Read the question properly and answer accordingly.***

(ii) ***Question paper consists of 3 parts.***

(iii) ***Scientific and Non-programmable calculators are permitted.***

Part A

Answer **all** the Questions. **Each** question carries **three** marks. (2x3=06)

1. In AM/DSBFC wave if a carrier and one of the sideband is removed then percent power saving is 83.33%? Find the modulation index.
2. What is quadrature null effect and Donald duck voice effect?

Part B

Answer **all** the Questions. **Each** question carries **four** marks. (2x4=08)

3. Describe how DSBSC wave is generated using Balanced Modulator.
4. Explain the detection of SSBSC using Coherent detection.

Part C

Answer the Question. Question carries **six** marks. (1x6=06)

5. A DSBSC transmission contains 20KW. This transmission is to be replaced by a standard AM/DSBFC signal with the same power content. Determine the power content of the carrier and each of the sidebands when the percent modulation is 80%. Also find the efficiency of DSBSC modulator

Roll No.												

PRESIDENCY UNIVERSITY
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END TERM FINAL EXAMINATION

Odd Semester: 2018-19 | **Date**: 27 December 2018

Course Code: ECE 210 | **Time**: 2 Hours

Course Name: Analog Communication | **Max Marks**: 40

Programme & Sem: ECE & V Sem | **Weightage**: 40%

Instructions:

(i) Read the question properly and answer accordingly.
(ii) Question paper consists of 3 parts.
(iii) Scientific and Non-programmable calculators are permitted.

Part A

Answer **all** the Questions. **Each** question carries **three** marks. (3Qx3M=09)

1. List the merits and demerits of AM and FM
2. What is pulse modulation? List different types of pulse modulation
3. A 20MHz sinusoidal carrier is frequency modulated by $m(t) = Am\cos 2\pi fmt$ such that the peak frequency deviation is 100KHz. Determine the modulation index if fm=1KHz, 50KHz and 500KHz.

Part B

Answer **all** the Questions. **Each** question carries **eight** marks. (3Qx8M=24)

4. Explain how PPM is generated and detected using R S flip-flop.
5. Explain the generation of WBFM using direct method.
6. Describe how PLL can be used for the detection of FM signal?

Part C

Answer the Question. Question carries **seven** marks. (1Qx7M=07)

7. An angle modulated signal is represented by $s(t) = 10\cos[2\pi 1000000t + 5\sin 2000\pi t + 10\sin 3000\pi t]$volts. Find the power in the modulated signal, the frequency deviation, deviation ratio, the phase deviation, the approximate transmission bandwidth, carrier swing and maximum frequency component in the modulated signal.