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Roll No. : .....

**B028411(028)**

**B.Tech. (Fourth Semester) Examination**

**April-May 2021**

**(New Scheme)**

**(ET & T Engg. Branch)**

**ANALOG COMMUNICATION**

***Time Allowed : Three hours***

***Maximum Marks : 100***

***Minimum Pass Marks : 35***

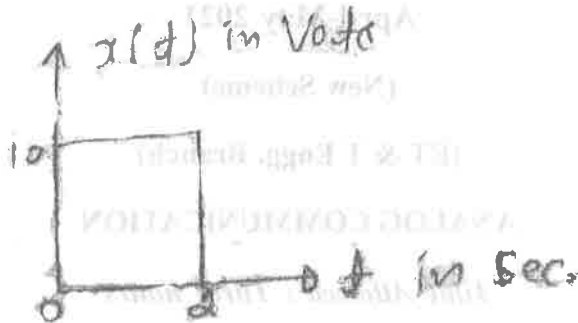
***Note : Attempt all questions. Part (a) of each question is compulsory & Solve any two parts from (b), (c) and (d) of each questions.***

**Unit-I**

1. (a) What are the basic constituents of a communication system? 4
- (b) State and prove parseval's theorem density of a signal. 8

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- (c) What is convolution? Explain time-convolution and frequency convolution theorems. 8
- (d) Obtain the Fourier transform of a rectangular pulse of duration 2 seconds and having a magnitude of 10 volts as shown in figure. 8



**Unit-II**

2. (a) Define modulation index. 4
- (b) Explain square law demodulator for Am signal. 8
- (c) Give mathematical proof of vestigial sideband modulation and demodulation alongwith waveform. 8
- (d) An Am broadcast radio transfer radiates 10 k Watts of power if modulation percentage is 60 calculate how much of this is the carrier power. 8

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**Unit-III**

3. (a) Define angle modulation. 4
- (b) Explain Armstrong parameter variation method for generation of FM signal. 8
- (c) A rule of bandwidth for FM signal is sometime used as  $BW = (2mf + 1) fm$ . Find the fraction of the signal power that is included in that frequency band. Assume the  $mf = 1$ . 8
- (d) Explain the difference between narrow band FM and Wideband FM. 8

**Unit-IV**

4. (a) Define selectivity for a receiver. 4
- (b) Draw the block diagram of a superheterodyne receiver and explain the function of each block. 8
- (c) Distinguish between simple AGC and delayed AGC. 8
- (d) Write the advantages of a R. f. amplifier. 8

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**Unit-V**

5. (a) Define figure of merits. 4
- (b) Discuss the noise in DSBSC receiver prove that the figure of merit is unity. 8
- (c) Derive expression to calculate figure of merit in SSB-SC. 8
- (d) Find the overall noise figure of a three stage cascaded amplifier each stage having a power gain of 10 dB and figure of 6 dB. 8

**Unit-VI**

4. (a) Define sensitivity for a receiver.
- (b) Draw the block diagram of a superheterodyne receiver and explain the function of each block.
- (c) Distinguish between simple VCO and delay VCO.
- (d) Write the advantages of a PLL amplifier.