**Roll No. ……………………………………………………………**

**NEELKANTH INSTITUTE OF TECHNOLOGY**

**B.Tech ECE (Semester V)**

**FIRST SESSIONAL EXAMINATION 2015-2016**

**PRINCIPLE OF COMMUNICATION (NEC-502)**

***Time: 1:30 Hours Total Marks 30***

***NOTE: - i.*** *be precise in your Answer*

***ii.*** *All section are compulsory*

**SECTION A**

1. **Attempt all the Questions: 1X10=10**
2. A periodic signal *x(t)* is fed as input to a filter having impulse response *h(t).* The output of the filter would be
3. Not necessarily periodic
4. Necessarily periodic, with same period of factor there.
5. Generally not periodic, but if so then having the same period.
6. Necessarily periodic but having a longer period.
7. The following is not an advantage of SSB over DSB-Full carrier AM.
8. Transmitter circuit are more stable, giving better reception.
9. The signal is more immune to noise.
10. Much less power is required for the same signal strength.
11. More channel space becomes available.
12. Power saving in AM-DSB/SC is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
13. Bandwidth required to transmit AM SSB/SC is \_\_\_\_.
14. Draw the Ring modulator diode circuit.
15. In the envelope detection diagonal clipping occurs due to \_\_\_\_\_\_\_\_\_\_**high/low** modulating frequency.
16. Vestigial sideband transmission comprises between \_\_\_\_\_\_\_\_\_\_\_\_\_.
17. The basic advantage of VSB is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
18. In the FM if the modulation index increases the number of sideband \_\_\_\_\_\_\_\_ **increase/decrease**.
19. Frequency deviation controls the\_\_\_\_\_\_ **BW/m*f.***

**SECTION B**

1. **Attempt any Five Question : 2X5=10**
2. What is the relationship between FM and PM & Write the Carson’s rule.
3. Define the Modulation index in AM, FM & PM.
4. Derive an expression for power contained in AM-DSB/FC signal.
5. Classify the analog modulation techniques.
6. Define modulation and why it is required?
7. The transmitter radiates the 1200 W of power under carrier is modulated by two tone of 20% and 40% respectively. Determine the total power radiated.
8. In an aerial Current (RMS) before modulation is 10A. After modulating it to 11.6A. Determine the modulation Pmod. If the carrier power is 10kW, what is the power after modulation?

**SECTION C**

1. **Attempt any Two Questions: 5X2=10**

1. Explain the VSB transmission concept, its advantage, recovery of modulating signal from the VSB signal, the basic feature of VSB transmission.
2. The input to an envelope detector is single tone AM Signal xAM(t)=A(1+ma cos (wm t))\*cos(wc t), where ma is constant, 0< ma<1 and wc>> wm.

Show if the detector output is to follow the envelope of xAM(t) it is required that at any time t0

OR

Briefly explain the square law demodulator (nonlinear) AM DSB/SC.

1. Explain the generation and detection of AM-SSB/SC.