STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086.
(For candidates admitted during the academic year 2011-2012)

SUBJECT CODE : 11PH/ME/CS53

B.Sc. DEGREE EXAMINATION NOVEMBER 2013

BRANCH III - PHYSICS

FIFTH SEMESTER

COURSE : MAJOR – ELECTIVE
PAPER : COMMUNICATION SYSTEMS
TIME : 3 HOURS **MAX. MARKS : 100**

SECTION - A

ANSWER ALL QUESTIONS: **(10x3=30)**

1. Mention the limitations of amplitude modulation.
2. What is modulation index?
3. Write note on skip distance.
4. What is velocity modulation?
5. Define maximum usable frequency.
6. What is Doppler shift?
7. What are Skew rays and Meridional rays?
8. Brief the term “cladding “in fibre optic communication.
9. What is a crossed device? Why it is called so?
10. Brief “interlaced scanning”

SECTION – B

ANSWER ANY FIVE QUESTIONS: **(5x6=30)**

11. A signal $e_s = 2 \text{ Sin } 6280t$ amplitude modulates a carrier $e_c = 5 \text{ Sin } 10^4 t$. Find
    a) Modulation index
    b) Amplitude of the side bands
    c) Band width of transmission
12. What is ionosphere? Discuss the different layers of it.
13. What is frequency modulation? Mention the merits and demerits of frequency modulation over amplitude modulation.
14. Explain the working of a Reflex klystron.
15. Explain the working of a radar with a neat block diagram
16. Discuss the different losses associated with an optic fibre.
17. Write note on Satellite communication.

SECTION – C

ANSWER ANY TWO QUESTIONS: **(2x20=40)**

18. What is amplitude modulation? Give the mathematical analysis of an amplitude modulated wave. Also find the energy spectrum of the amplitude modulated wave.
19. With a neat schematic diagram explain the action of two cavity klystron.
20. With a neat diagram explain the principle and working of a camera tube image orthicon. Explain the different sections of the camera tube.
21. Write note on
    a) Space wave propagation
    b) Classification of Optical Fibres

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