

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

**SUBJECT CODE : 11PH/ME/CS53**

**B.Sc. DEGREE EXAMINATION NOVEMBER 2014**  
**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. Define modulation index in amplitude modulation.
2. What is pulse width modulation and write its advantage?
3. What are sky waves?
4. What is meant by virtual height?
5. Give brief working principle of RADAR.
6. What are microwaves?
7. Define acceptance angle and numerical aperture.
8. Why is it necessary to meet total internal reflection requirement inside an optical fibre?
9. Explain the working of vidicon camera tube.
10. Define uplink and downlink in satellite communication.

**SECTION – B**

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

11. Calculate the power in amplitude modulated wave.
12. Draw and explain the circuit for producing FM waves.
13. Explain ionosphere in detail.
14. Explain the principle and working of Klystron oscillator method of producing microwaves.
15. Explain with necessary theory the light propagation in optical fibres.
16. Explain briefly the classification of fibres.
17. Explain the working of image orthicon.

**SECTION – C**

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

18. Explain with necessary theory, the principle of obtaining (i) SSB (ii) DSB (iii) VSB amplitude modulated wave.
19. Draw the block diagram of RADAR and explain its function. Derive the RADAR equation and mention its uses.
20. Explain about losses and distortion in fibre optic communication.
21. a) Explain the various components used in satellite communication.  
b) Discuss the importance of ground wave propagation for communication purposes.

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