



PHYSICS

BOOKS - BETTER CHOICE PUBLICATION

PRINCIPLES OF COMMUNICATION

Very Short Answer Type Questions

1. What is an optical fibre?



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2. What is active satellite?



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3. What is Attenuation ?



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4. What is Attenuation ?



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5. What is skywave propagation ?



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6. What is the common name of facsimile ?



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7. Answer the following questions

The small ozone layer on top of the

stratosphere is crucial for human survival.

Why?



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8. What is space wave propagation ? Give one example of communication system, which use space wave mode.



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9. What is demodulation ?



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10. What do you mean by demodulation of wave?



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11. What is demodulation ?



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12. What is demodulation ?



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13. What is modulation ?



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14. What do you mean by modulation of wave
?



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15. What is the need for modulation ?



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16. What is a modulator ?



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17. What is a demodulator ?



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18. What are carrier waves ?



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19. What do you mean by communication ?



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20. What is transducer ? Give one example.



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21. What is function of transducer ?



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22. What is amplitude modulation ?



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23. What is Bandwidth ?



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24. What is an analog signal ?



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25. What is modulated wave ?



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26. Give the basic function of antenna.



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27. Name the three basic elements of a communication system.



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28. What is meant by bandwidth?



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29. What is space wave propagation ? Give one example of communication system, which use space wave mode.



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30. What is ground water ?



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31. How can you increase the range of transmission of a signal by a TV tower ?



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32. Define modulation index



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Short Answer Type Questions

1. What is remote sensing? What are the uses of remote sensing satellites?



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2. Name the three basic elements of a communication system.



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3. Explain why are the TV towers made high.



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4. Draw a labelled circuit diagram for the detection (demodulation) of amplitude modulated waves.



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5. What is modulation ?



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6. Explain sky wave propagation of radiowaves.



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7. Draw the circuit diagram for an amplitude modulator.



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8. Draw a labelled circuit diagram for the detection (demodulation) of amplitude

modulated waves.



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9. Explain space wave propagation of radio waves.



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10. Draw a labelled block diagram of a basic communication system.



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11. What is communication satellite ?



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12. What is transducer ? Give one example.



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13. Briefly explain the term sky wave propagation.



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14. What is the need for modulation ?



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15. What is modulation ?



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16. What is ozone layer ? Give its importance.



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17. Answer the following questions

The small ozone layer on top of the stratosphere is crucial for human survival.

Why?



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18. What is space wave propagation ? Why is it limited upto small distance over earth's

surface ?



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19. What is the need for modulation ?



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20. Why audio signals cannot be transmitted directly into space ?



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21. Explain basic elements of communication system with the help of block diagram.



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22. What are the limitations of amplitude modulation ?



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23. Give one difference between point to point mode of communication and broadcast mode of communication. Give one example of each mode of communication.



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24. Why is ground wave propagation not suitable for high frequency ?



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25. Explain the term ground waves propagation of radio-waves.



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26. Explain why sky wave propagation is not possible for high frequency radiowaves ?



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27. What is space wave propagation ? Give one example of communication system, which use space wave mode.



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28. Write any two factors, which justify the need of modulation for the transmission of the audio signals.



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29. Explain space wave propagation.



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30. What do you mean by medium wave band and short wave band ?



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31. Define frequency modulation.



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32. What do you mean by medium wave band and short wave band ?



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33. What is remote sensing? What are the uses of remote sensing satellites?



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34. Compare amplitude modulation and frequency modulation.



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35. Write any four advantages of optical fibre communication.



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36. What is modem?



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37. Draw a labelled block diagram of a basic communication system.



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38. Explain the concept of amplitude modulation by drawing suitable waveforms .



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39. What is the need for modulation ?



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40. Explain space wave propagation of radio waves.



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41. Explain sky wave propagation of radiowaves.





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42. Explain the term ground waves propagation of radio-waves.



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Numerical Problems

1. An FM wave is represented by

$$E = 12 \sin(6 \times 10^8 t + 5 \sin 1250t)$$

Calculate :

- (i) Carrier amplitude .
- (ii) Carrier frequency .
- (iii) Frequency deviation .
- (iv) Modulating frequency .



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2. The amplitude modulated voltage E is given by :

$$E = 100[1 + 0.6 \sin 3000t] \sin(5 \times 10^5)t .$$

Calculate :

- (i) Modulation index .

(ii) Modulating frequency .

(iii) Carrier frequency .

(iv) Carrier frequency .

(iv) Total power fed to the antenna of 100Ω resistance .



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3. Write the equation of Amplitude modulated wave, if the carrier voltage is 10 V, the modulation index , is 0.2 , the carrier and

modulation frequencies are 7 MHz and 2.5 KHz respectively .



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4. A carrier frequency of a station is 50MHz. A resistor of $10K\Omega$ and a capacitor of 10 pF are available in detector circuit. Is it good enough for detection?



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5. In a diode detector output circuit consist of $R = 1\text{ M}\Omega$ and $C = 1\text{ pF}$, calculate the carrier frequency it can detect.



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6. In a diode detector, output circuit consists of a resistor of $10\text{ M}\Omega$ and a capacitor of 1 pF . Calculate the carrier frequency it can detect.



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7. 600 Hz modulating voltage fed into FM generator produces a frequency deviation of 3.36 KHz. Find the modulation index.



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8. A transmitting antenna at the top of a tower has a height 16m and the height of receiving antenna is 25m. What is the maximum distance between them for

satisfactory communication in LOS mode?

Given radius of earth is $6.4 \times 10^6 m$.



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9. When a broadcast AM transitor is 50% modulated, its antenna current is 12A. What would be the carrier current ?



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