



PHYSICS

BOOKS - MTG PHYSICS (ENGLISH)

COMMUNICATION SYSTEMS

Exercise

1. Who invented world wide web?

- A. J.C.R. Licklider
- B. Tim Berners-Lee
- C. Alexander Graham Bell
- D. Samuel F.B. Morse

Answer: B



Watch Video Solution

2. Essential elements of a communication system are

- A. transmitter and receiver
- B. reciever and communication channel
- C. transmitter and communication channel
- D. transmitter, comunication channel and receiver

Answer: D



Watch Video Solution

3. Which of the following is an example of point to point communication mode?

- A. Radio
- B. Television

C. Telephony

D. All of these

Answer: C



Watch Video Solution

4. Which among following is not a basic terminology used in electronic communication systems?

A. Transducer

B. Transmitter

C. Telegraph

D. Attenuation

Answer: C



Watch Video Solution

5. Which of the following is not transducer?

A. Loudspeaker

B. Amplifier

C. Microphone

D. All of these

Answer: B



Watch Video Solution

6. The loss of strength of a signal while propagating through a medium is known as

A. reception

B. absorption

C. transmission

D. attenuation

Answer: D



Watch Video Solution

7. The process of increasing the strength of a signal using an electronic circuit is called.

- A. amplification
- B. modulation
- C. demodulation
- D. transmission

Answer: A



Watch Video Solution

8. Modem is a device which performs

- A. modulation
- B. demodulation
- C. rectification
- D. modulation and demodulation

Answer: D

 [Watch Video Solution](#)

9. Modulation is the process of superposing

- A. low frequency audio signal on high frequency radio waves.
- B. low frequency radio signals on low frequency audio wave.
- C. high frequency radio signal on low frequency audio signal.
- D. high frequency audio signal on low frequency radio waves.

Answer: A

 [Watch Video Solution](#)

10. The device which is a combination of a receiver and a transmitter is

- A. Amplifier
- B. Repeater
- C. Transducer
- D. Modulator

Answer: B



[Watch Video Solution](#)

11. Large bandwidth for higher data rate is achieved by using

- A. high frequency carrier wave
- B. high frequency audio wave
- C. low frequency carrier wave

D. low frequency audio wave

Answer: A



Watch Video Solution

12. In a video signal for transmission of picture. What value of bandwidth is used in communication system?

A. 2.4 MHz

B. 4.2MHz

C. 24MHz

D. 42MHz

Answer: B



Watch Video Solution

13. Which one of the following statement is correct?

- A. a. A single geostationary satellite can cover the whole part of the earth for microwave communication.
- B. b. Atleast three geotationary satellities in the same orbit around earth can cover the whole part of the earth for microwave communication.
- C. c. The first Indian communication satellite is Telstar.
- D. d.The satellite communication is not like the line of sight microwave communication.

Answer: B



[Watch Video Solution](#)

14. Which of the following is an example of broadcast mode of communication?

- A. Radio
- B. Television
- C. Mobile
- D. Both a and b

Answer: D

 [Watch Video Solution](#)

15. Which of the following device is full duplex?

- A. Mobile phone
- B. Walky-talky
- C. Loud speaker
- D. Radio

Answer: A

 [Watch Video Solution](#)

16. FM broadcast is preferred over AM broadcast because

- A. it is less noisy.
- B. reproduction is of much better quality.
- C. it is more noisy.
- D. both a and b

Answer: D



[Watch Video Solution](#)

17. The frequency band used in the downlink of a satellite communication is

- A. 9.5 to 2.5 GHz
- B. 896 to 901 MHz
- C. 3.7 to 4.2 GHz

D. 840 to 935 MHz

Answer: C



Watch Video Solution

18. The radio waves of frequency $300MHz$ to $3000MHz$ belong to

- A. high frequency band
- B. very high frequency band
- C. ultra high frequency band
- D. super high frequency band

Answer: B



Watch Video Solution

19. For base station to mobile communication, the required frequency band is

- A. 540-1600 KHz
- B. 200-325MHz
- C. 5.9-6.42GHz
- D. 840-935 MHz

Answer: D



[Watch Video Solution](#)

20. Match the column I with column II.

Column I (Service)		Column II (Frequency bands)	
(A)	Television	(p)	896-935 MHz
(B)	Cellular Mobile Radio	(q)	540-1600 kHz
(C)	Standard AM broadcast	(r)	54-890 MHz
(D)	FM broadcast	(s)	88-108 MHz

A. A-(q),B-(r), C-(s),D-(p)

B. A-(q),B-(s),C-(q),D-(r)

C. A-(r),B-(p),C-(q),D-(s)

D. A-(r),B-(s),C-(p) ,D-(q)

Answer: C



Watch Video Solution

21. In optical communication system operating at 1200nm, only 2% of the source frequency is available for TV t ransmission having a bandwidth of 5 MHz. the number of TV channels that can be transmitted is

A. 2 million

B. 10 million

C. 0.1 million

D. 1 million

Answer: D



[Watch Video Solution](#)

22. A microwave telephone link operating at the central frequency of 10GHz has been established if 2% of this is available for microwave communication channel. Then how many telephone channels can be simultaneously granted if each telephone is allotted a bandwidth of 8 KHz?

A. 1.5×10^3

B. 3.5×10^2

C. 2.5×10^4

D. 4.5×10^6

Answer: C



[Watch Video Solution](#)

23. A band width of 5 MHz is available for AM transmission. If the maximum audio signal frequency used for modulating the carrier is not to exceed 5 kHz, how many stations can be broad cast within this band simultaneously without interfering with eachother?

A. 200

B. 300

C. 400

D. 500

Answer: D



[Watch Video Solution](#)

24. A communication between a fixed base station and several mobile units, located on ships or aircraft utilising two way radio communication in the VHF and UHF is of frequency band

A. 3 to 30 MHz

B. 30 to 300 MHz

C. 30 to 470MHz

D. 30 to 600 MHz

Answer: C



[Watch Video Solution](#)

25. Ground wave have wavelength

A. a) less than that of sky waves

B. b) greater than that of sky waves

C. c) less than that of space waves

D. d) equal to that of space waves

Answer: B



[Watch Video Solution](#)

26. The mode of propagation used by short wave broadcast services is

- A. space wave
- B. sky wave
- C. ground wave
- D. both and and c

Answer: B



Watch Video Solution

27. The skip zone in radio wave transmission is that range where

- A. there is no reception of either ground wave or sky wave
- B. the reception of ground wave is maximum but that of sky wave is minimum

C. the reception of ground wave is minimum, but that of sky wave is maximum

D. the reception of both ground and sky wave is maximum.

Answer: A



[Watch Video Solution](#)

28. Which one of the following statements is wrong?

A. Ground wave propagation can be sustained at frequencies 500 KHz to 1500 KHz.

B. Satellite communication is useful for the frequencies above 30 MHz.

C. Sky wave propagation is useful in the range of 30 to 40 MHz.

D. Space wave propagation takes place through tropospheric space.

Answer: C



[Watch Video Solution](#)

29. The waves that are bent down by the ionosphere are

- A. grund waves
- B. surface waves
- C. space waves
- D. sky waves

Answer: D



Watch Video Solution

30. The maximum line-of-sight distance d_M between two antennas having heights h_T and h_R above the earth is

- A. $\sqrt{R(h_T + h_R)}$
- B. $\sqrt{2R/(h_T + h_R)}$
- C. $\sqrt{Rh_T} + \sqrt{2Rh_R}$

D. $\sqrt{2Rh_T} + \sqrt{2Rh_R}$

Answer: D



Watch Video Solution

31. Frequencies in the UHF range normally propagate by means of

- A. ground waves
- B. sky wave
- C. surface waves
- D. space waves

Answer: D



Watch Video Solution

32. If the whole earth is to be connected by LOS communication using space waves (no restriction of antenna size or tower height), what is the minimum no of antennaas required ? Calculate the tower height of these antennas in terms of earth's radius?

A. 2

B. 3

C. 4

D. 6

Answer: D



Watch Video Solution

33. A ground receiver in line-of-sight communication cannot receive direct waves due to

A. its low frequency

- B. curvature of earth
- C. its high intensity
- D. smaller antenna

Answer: B



[Watch Video Solution](#)

34. Which of the following modes is used for line of sight

- A. Ground wave
- B. Sky wave propagation is useful in the range of 30 to 40 MHz.
- C. Space wave
- D. All of these

Answer: C



[Watch Video Solution](#)

35. Through which mode of propagation, the radio waves can be sent from one place to another

- A. Ground wave propagation can be sustained at frequencies 500 KHz to 1500 KHz.
- B. Sky wave propagation is useful in the range of 30 to 40 MHz.
- C. space wave propagation
- D. all of them

Answer: D



Watch Video Solution

36. Which of the following frequencies will be suitable for beyond the horizon communication using sky waves?

- A. 10KHz
- B. 10MHz

C. 1GHz

D. 1000GHz

Answer: B



[Watch Video Solution](#)

37. A TV transmitting antenna is 125 m tall. How much service area this transmitting antenna cover, if the receiving antenna is at the ground level? Radius of earth = 6400km .

A. 3258km^2

B. 4180km^2

C. 2510km^2

D. 1525km^2

Answer: A



[Watch Video Solution](#)

38. A transmitting antenna at the top of the tower has a height 18 m and the height of the receiving antenna is 32m. The maximum distance between them for satisfactory communication in line of sight mode is (Radius of earth = $6.4 \times 10^6 m$)

- A. 15.15km
- B. 21.25km
- C. 30.45km
- D. 35.42km.

Answer: D



[Watch Video Solution](#)

39. A transmitting antenna of height 20 m and the receiving antenna of height h are separated by a distance of 40km for satisfactory communication in line of sight mode. Then the value of h is

A. 40m

B. 45m

C. 30m

D. 25m

Answer: B



Watch Video Solution

40. A TV transmission tower antenna is at a height of 20m. The percentage increase in area covered in case if the receiving antenna is at ground level to that at a height of 25 m is (Radius of earth = $6.4 \times 10^6 m$)

A. 2.48

B. 348.9 %

C. 150 %

D. 360.2 %

Answer: B



Watch Video Solution

41. By what percentage will the transmission range of a T.V. tower be affected when the height of the tower is increased by 21% ?

A. 0.1

B. 0.2

C. 0.3

D. 0.4

Answer: A



Watch Video Solution

42. A TV transmission tower has a height of 240 m. Signals broadcast from this tower will be received by LOS communication at a distance of

(assume the radius of earth to be $6.4 \times 10^6 m$)

A. 100km

B. 110km

C. 55km

D. 120km

Answer: C



[Watch Video Solution](#)

43. A fax message is to be sent from Delhi to Washington via a geostationary satellite. Calculate the minimum time delay between the dispatch and its getting received. Take height of the geostationary satellite = 36000 km.

A. $72 \times 10^3 km$

B. $12 \times 10^3 km$

C. $27 \times 10^3 \text{ km}$

D. $18 \times 10^3 \text{ km}$

Answer: A



Watch Video Solution

44. A 50 MHz sky wave sky wave takes 4.04 ms to reach a receiver via re-transmission from a satellite 600 km above earth's surface. Assuming re-transmission time by satellite negligible, find the distance between source and receiver. If communication between the two was to be done by Line of sight (LOS) method, what should be the size of transmitting antenna ?

A. 606km

B. 170km

C. 340km

D. 280km

Answer: B



[Watch Video Solution](#)

45. What should be the length of the dipole antenna for a carrier wave of frequency 3×10^8 Hz?

A. 1m

B. 0.5m

C. 2m

D. 2.5 m

Answer: B



[Watch Video Solution](#)

46. A radio can tune to any station in 7.5 MHz to 12MHz band. The corresponding wavelength band is

A. 25m-40m

B. 10m-30m

C. 20-40m

D. 25m-35m

Answer: A



[Watch Video Solution](#)

47. On a particular day, the maximum frequency reflected from the ionosphere is 10 MHz. On another day, it was found to increase to 11 MHz. Calculate the ratio of the maximum electron densities of the ionosphere on the two days. Point out a plausible explanation for this.

A. 1.21

B. 0.82

C. 0.50

D. 0.25

Answer: A



[Watch Video Solution](#)

48. In frequency modulation

- A. the amplitude of modulated wave varies as frequency of carrier wave
- B. the frequency of modulated wave varies as amplitude of modulating wave
- C. the amplitude of modulated wave varies as amplitude of carrier wave
- D. the frequency of modulated wave varies as frequency of modulating wave

Answer: D



[Watch Video Solution](#)

49. Audio signal cannot be transmitted because

- A. the signal has more noise.
- B. the signal cannot be amplified for distance communication.
- C. the transmitting antenna length is very small to design.
- D. the transmitting antenna length is very large and impracticable.

Answer: D



[Watch Video Solution](#)

50. The modulation in which pulse. Duration varies in accordance with the modulating signal is called

- A. PAM
- B. PPM
- C. PWM

D. PCM

Answer: C



[Watch Video Solution](#)

51. Which of the following is digital modulation technique?

A. PCM

B. PAM

C. PPM

D. PTM

Answer: A



[Watch Video Solution](#)

52. If both the length of an antenna and the wavelength of the signal to be transmitted are doubled, the power radiated by the antenna

- A. is doubled
- B. is halved
- C. remains constant
- D. is quadrupled

Answer: C



[Watch Video Solution](#)

53. A 300W carrier is modulated to a depth 75%. The total power in the modulated wave is

- A. 200W
- B. 284W
- C. 320W

D. 384W

Answer: D



[Watch Video Solution](#)

54. An audio signal of 15 kHz frequency cannot be transmitted over long distance without modulation because.

- A. the size of the required antenna would be least 5 km which is not convenient.
- B. the audio signal can not be transmitted through sky waves.
- C. effective power transmitted would be very low. If the size of the antenna is less than 5 km.
- D. all of these

Answer: D



[Watch Video Solution](#)

55. A signal wave of frequency 12 kHz is modulated with a carrier wave of frequency 2.51 MHz. The upper and lower side band frequencies are respectively.

A. 2512 KHz and 2508KHz

B. 2522KHz and 2488KHz

C. 2502KHz and 2498KHz

D. 2522KHz and 2498KHz

Answer: D



[Watch Video Solution](#)

56. A message signal of frequency 10 kHz and peak voltage 10 volt is used to modulate a carrier of frequency 1 MHz and peak voltage 20 volt. Determine (a) modulation index (b) the side bands produced.

A. 1000 KHz, 990KHz

B. 1010KHz,990KHz

C. 990KHz,1000KHz

D. 1010KHz,1000KHz

Answer: B



[Watch Video Solution](#)

57. The maximum amplitude of an AM wave is found to be 15 V while its minimum amplitude is found to be 3 V. What is the modulation index?

A. $\frac{3}{2}$

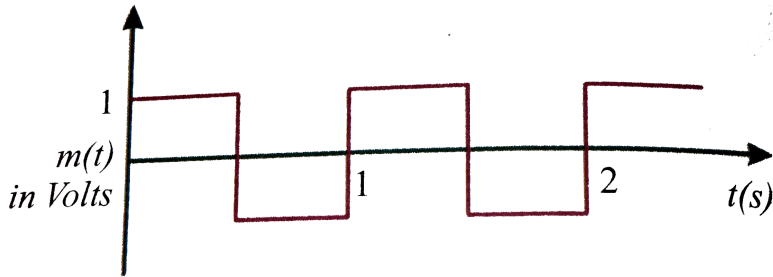
B. $\frac{2}{3}$

C. $\frac{1}{2}$

D. $\frac{1}{3}$

Answer: B

58. A modulating signal is a square wave as shown in figure.



The carrier wave is given by

$$c(t) = 2 \sin(8\pi t) \text{ volt.}$$

The modulation index is

- A. 0.2
- B. 0.3
- C. 0.4
- D. 0.5

Answer: D

59. A sinusoidal voltage amplitude modulates another sinusoidal voltage of amplitude 2 kV resulting in two side bands of amplitude 200 V. Find the modulation index.

A. 0.2

B. 0.3

C. 0.4

D. 0.5

Answer: A



[Watch Video Solution](#)

60. In an amplitude modulation with modulation index 0.5 the ratio of the carrier wave to that of side band in the modulated wave is

A. 4:1

B. 1:4

C. 1:3

D. 2:1

Answer: A



[View Text Solution](#)

61. A carrier wave of peak voltage $12V$ is used to transmit a message signal. The peak voltage of the modulating signal in order to have a modulation index of 75% is

A. $6V$

B. $7V$

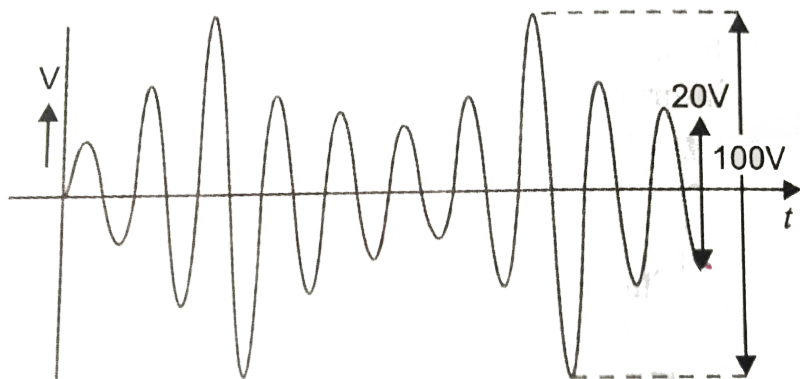
C. $8V$

D. $9V$

Answer: D



62. An amplitude modulated wave is as shown in figure. Calculate (i) the percentage modulation, (ii) peak carrier voltage and , (iii) peak value of information voltage.



- A. 30V,20V
- B. 10V,15V
- C. 15V,30V
- D. 20V,35V

Answer: A



63. Compute LC product of a tuned amplifier circuit required to generate a carrier wave of 1MHz for amplitude modulation

A. $1.5 \times 10^{-14} \text{ s}$

B. $1.2 \times 10^{-12} \text{ s}$

C. $3.2 \times 10^{-12} \text{ s}$

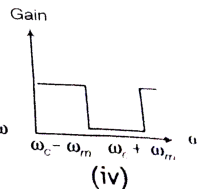
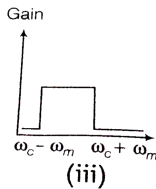
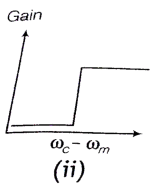
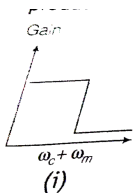
D. $2.5 \times 10^{-14} \text{ s}$

Answer: D



Watch Video Solution

64. The frequency response curve (figure) for the filter circuit used for production of AM wave should be



A. i followed by ii

B. ii followed by i

C. iii

D. all of these

Answer: D



[Watch Video Solution](#)

65. In which of the following remote sensing technique is not used?

A. Medical treatment

B. Pollution

C. Wetland mapping

D. Ground water survey

Answer: A



[Watch Video Solution](#)

66. Identify the incorrect statement from the following

- A. AM detection is carried out using a rectifier and an envelope detector.
- B. Pulse position denotes the time of rise or fall of the pulse amplitude.
- C. Modulation index μ is kept ≥ 1 , to avoid distortion.
- D. Facsimile (FAX) scans the contents of the document to create electronic signals.

Answer: C



[Watch Video Solution](#)

67. The essential condition for demodulation is

A. $v_c < < RC$

B. $\frac{1}{v_c} < < RC$

C. $\frac{1}{v_c} > > RC$

D. $v_c > > RC$

Answer: B



[Watch Video Solution](#)

68. In a diode AM detector with the output circuit consists of $R=1M\Omega$ and $C = 1pF$ would be more suitable for detecting a carrier signal of

A. 1MHz

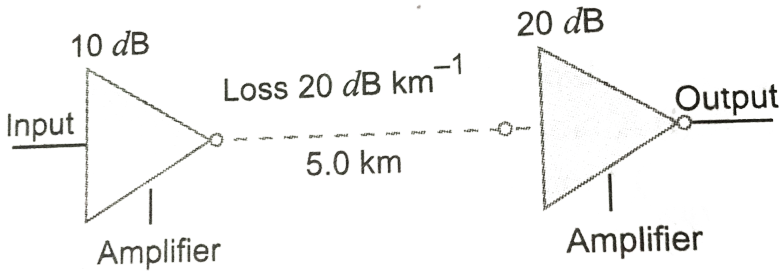
B. 0.1 MHz

C. 0.5MHz

D. 10MHz

Answer: D

69. Figure (EP) shows a communication system. What is the output power when input signals is of 1.01 mW? [gain in $dB = 10 \log_{10}(P_0 / P_t)$].



- A. 90mW
- B. 101mW
- C. 1112mW
- D. 120mW

Answer: B

70. (i) The intensity of a light pulse travelling along a communication channel decreases exponentially with distance x according to the relation $I = I_0 e^{-\alpha x}$, where I_0 is the intensity at $x = 0$ and α is the attenuation constant.

Show that the intensity reduces by 75 percent after a distance of $\frac{\ln 4}{\alpha}$

(ii) Attenuation of a signal can be expressed in decibel (dB) according to the relation

$\text{dB} = 10 \log_{10}(I/I_0)$. What is the attenuation in dB/km for an optical fibre in which the intensity falls by 50 percent over a distance of 50 km?

A. 0.7

B. 0.75

C. 0.8

D. 0.85

Answer: B



[Watch Video Solution](#)

71. Who invented world wide web?

- A. J.C.R. Licklider
- B. Tim Berners-Lee
- C. Alexander Graham Bell
- D. Samuel F.B. Morse

Answer: B



Watch Video Solution

72. Essential elements of a communication system are

- A. transmitter and receiver
- B. reciever and communication channel
- C. transmitter and communication channel
- D. transmitter, comunication channel and receiver

Answer: D



Watch Video Solution

73. Which of the following is an example of point to point communication mode?

- A. Radio
- B. Television
- C. Telephony
- D. All of these

Answer: C



Watch Video Solution

74. Which among following is not a basic terminology used in electronic communication systems?

- A. Transducer
- B. Transmitter
- C. Telegraph
- D. Attenuation

Answer: C

 [Watch Video Solution](#)

75. Which of the following is not transducer?

- A. Loudspeaker
- B. Amplifier
- C. Microphone
- D. All of these

Answer: B

 [Watch Video Solution](#)

76. The loss of strength of a signal while propagating through a medium is known as

- A. reception
- B. absorption
- C. transmission
- D. attenuation

Answer: D



[Watch Video Solution](#)

77. The process of increasing the strength of a signal using an electronic circuit is called.

- A. amplification
- B. modulation

C. demodulation

D. transmission

Answer: A



Watch Video Solution

78. Modem is a device which performs

A. modulation

B. demodulation

C. rectification

D. modulation and demodulation

Answer: D



Watch Video Solution

79. Modulation is the process of superposing

- A. low frequency audio signal on high frequency radio waves.
- B. low frequency radio signals on low frequency audio wave.
- C. high frequency radio signal on low frequency audio signal.
- D. high frequency audio signal on low frequency radio waves.

Answer: A



[Watch Video Solution](#)

80. The device which is a combination of a receiver and a transmitter is

- A. Amplifier
- B. Repeater
- C. Transducer
- D. Modulator

Answer: B



Watch Video Solution

81. Large bandwidth for higher data rate is achieved by using

- A. high frequency carrier wave
- B. high frequency audio wave
- C. low frequency carrier wave
- D. low frequency audio wave

Answer: A



Watch Video Solution

82. In a video signal for transmission of picture. What value of bandwidth is used in communication system?

A. 2.4 MHz

B. 4.2MHz

C. 24MHz

D. 42MHz

Answer: B



[Watch Video Solution](#)

83. Which one of the following statement is correct?

A. A single geostationary satellite can cover the whole part of the earth for microwave communication.

B. Atleast three geotationary satellities in the same orbit around earth can cover the whole part of the earth for microwave communication.

C. The first Indian communication satellite is Telstar.

D. The satellite communication is not like the line of sight microwave communication.

Answer: B

 [Watch Video Solution](#)

84. Which of the following is an example of broadcast mode of communication?

- A. Radio
- B. Television
- C. Mobile
- D. Both a and b

Answer: D

 [Watch Video Solution](#)

85. Which of the following device is full duplex?

- A. Mobile phone
- B. Walky-talky
- C. Loud speaker
- D. Radio

Answer: A



Watch Video Solution

86. FM boradcast is preferred over AM broadcast because

- A. it is less noisy.
- B. reproduction is of much better quality.
- C. it is more noisy.
- D. both a and b

Answer: D



[Watch Video Solution](#)

87. The frequency band used in the downlink of satellite communication is

- A. 9.5 to 2.5 GHz
- B. 8.96 to 0.901 MHz
- C. 3.7 to 4.2 GHz
- D. 840 to 935 MHz

Answer: C



[Watch Video Solution](#)

88. The radio waves of frequency 300MHz to 3000MHz belong to

- A. high frequency band
- B. very high frequency band
- C. ultra high frequency band
- D. super high frequency band

Answer: B



Watch Video Solution

89. For base station to mobile communication, the required frequency band is

- A. 540-1600 KHz
- B. 200-325MHz
- C. 5.9-6.42GHz
- D. 840-935 MHz

Answer: D

90. Match the column I with column II.

Column I (Service)		Column II (Frequency bands)	
(A)	Television	(p)	896-935 MHz
(B)	Cellular Mobile Radio	(q)	540-1600 kHz
(C)	Standard AM broadcast	(r)	54-890 MHz
(D)	FM broadcast	(s)	88-108 MHz

A. A-(q),B-(r), C-(s),D-(p)

B. A-(q),B-(s),C-(q),D-(r)

C. A-(r),B-(p),C-(q),D-(s)

D. A-(r),B-(s),C-(p) ,D-(q)

Answer: C

91. In a communication system, operating at 1200 mm, only 2% of the source frequency is available for T.V. transmission , having a bandwidth of 5 MHz. The number of T.V. channels that can be transmitted is

A. 2 million

B. 10 million

C. 0.1 million

D. 1 million

Answer: D



[Watch Video Solution](#)

92. A microwave telephone link operating at the central frequency of 10GHz has been established if 2% of this is available for microwave communication channel. Then how many telephone channels can be simultaneously granted if each telephone is allotted a bandwidth of 8 KHz?

A. 1.5×10^3

B. 3.5×10^2

C. 2.5×10^4

D. 4.5×10^6

Answer: C

 [Watch Video Solution](#)

93. A band width of 5 MHz is available for AM transmission. If the maximum audio signal frequency used for modulating the carrier is not to exceed 5 kHz, how many stations can be broad cast within this band simultaneously without interfering with each other?

A. 200

B. 300

C. 400

D. 500

Answer: D



Watch Video Solution

94. A communication between a fixed base station and several mobile units, located on ships or aircraft utilising two way radio communication in the VHF and UHF is of frequency band

- A. 3 to 30 MHz
- B. 30 to 300 MHz
- C. 30 to 470MHz
- D. 30 to 600 MHz

Answer: C



Watch Video Solution

95. Ground wave have wavelength

- A. less than that of sky waves
- B. greater than that of sky waves
- C. less than that of space waves
- D. equal to that of space waves

Answer: B

 [Watch Video Solution](#)

96. The mode of propagation used by short wave broadcast services is

- A. space wave
- B. sky wave
- C. ground wave
- D. both a and c

Answer: B

 [Watch Video Solution](#)

97. The skip zone in radio wave transmission is that range where

- A. there is no reception of either ground wave or sky wave
- B. the reception of ground wave is maximum but that of sky wave is minimum
- C. the reception of ground wave is minimum, but that of sky wave is maximum
- D. the reception of both ground and sky wave is maximum.

Answer: A



[Watch Video Solution](#)

98. Which one of the following statements is wrong?

- A. Ground wave propagation can be sustained at frequencies 500 KHz to 1500 KHz.
- B. Satellite communication is useful for the frequencies above 30 MHz.
- C. Sky wave propagation is useful in the range of 30 to 40 MHz.
- D. Space wave propagation takes place through tropospheric space.

Answer: C



Watch Video Solution

99. The waves that are bent down by the ionosphere are

- A. ground waves
- B. surface waves
- C. space waves
- D. sky waves

Answer: D



Watch Video Solution

100. The maximum line-of-sight distance d_M between two antennas having heights h_T and h_R above the earth is

A. $\sqrt{R(h_T + h_R)}$

B. $\sqrt{2R/(h_T + h_R)}$

C. $\sqrt{Rh_T} + \sqrt{2Rh_R}$

D. $\sqrt{2Rh_T} + \sqrt{2Rh_R}$

Answer: D



Watch Video Solution

101. Frequencies in the UHF range normally propagate by means of:

A. ground waves

B. sky wave

C. surface waves

D. space waves

Answer: D



[Watch Video Solution](#)

102. If the whole earth is to be connected by line of sight communication using space waves (no restriction of antenna size or tower height). What is the minimum number of antennas required?

A. 2

B. 3

C. 4

D. 6

Answer: D



[Watch Video Solution](#)

103. A ground receiver in line-of-sight communication cannot receive direct waves due to

- A. its low frequency
- B. curvature of earth
- C. its high intensity
- D. smaller antenna

Answer: B



[Watch Video Solution](#)

104. Which of the following modes is used for line of sight

- A. Ground wave
- B. Sky wave propagation is useful in the range of 30 to 40 MHz.
- C. Space wave

D. All of these

Answer: C



[Watch Video Solution](#)

105. Through which mode of propagation, the radio waves can be sent from one place to another

- A. Ground wave propagation can be sustained at frequencies 500 KHz to 1500 KHz.
- B. Sky wave propagation is useful in the range of 30 to 40 MHz.
- C. space wave propagation
- D. all of them

Answer: D



[Watch Video Solution](#)

106. Which of the following frequencies will be suitable for beyond the horizon communication using sky waves?

- A. 10KHz
- B. 10MHz
- C. 1GHz
- D. 1000GHz

Answer: B



[Watch Video Solution](#)

107. A TV transmitting antenna is 81 m tall. How much service area it can cover if the receiving antenna is at the ground level? (Radius of earth = $6.4 \times 10^6 m$)

- A. $3258 km^2$
- B. $4180 km^2$

C. $2510km^2$

D. $1525km^2$

Answer: A



Watch Video Solution

108. A transmitting antenna at the top of the tower has a height 18 m and the height of the receiving antenna is 32m. The maximum distance between them for satisfactory communication in line of sight mode is (Radius of earth = 6.4×10^6m)

A. 15.15km

B. 21.25km

C. 30.45km

D. 35.42km.

Answer: D



Watch Video Solution

109. A transmitting antenna of height 20 m and the receiving antenna of height h are separated by a distance of 40km for satisfactory communication in line of sight mode. Then the value of h is

- A. 40m
- B. 45m
- C. 30m
- D. 25m

Answer: B

[Watch Video Solution](#)

110. A TV transmission tower of antenna is at a height of 20 m. How much service area can it cover if the receiving antenna is (i) at ground level (ii)

at a height of 25 m ? Calculate the percentage increase in area covered in case (ii) relative to case (i).

- A. 2.48
- B. 348.9 %
- C. 150 %
- D. 360.2 %

Answer: B



[Watch Video Solution](#)

111. By what percentage will the transmission range of a T.V. tower be affected when the height of the tower is increased by 21% ?

- A. 0.1
- B. 0.2
- C. 0.3

D. 0.4

Answer: A



[Watch Video Solution](#)

112. A TV transmission tower has a height of 240 m. Signals broadcast from this tower will be received by LOS communication at a distance of (assume the radius of earth to be $6.4 \times 10^6 m$)

A. 100km

B. 110km

C. 55km

D. 120km

Answer: C



[Watch Video Solution](#)

113. A fax message is to be sent from Delhi to Washington via a geostationary satellite. The minimum distance between the dispatch and its getting received is (Take height of the geostationary satellite=36000km)

A. $72 \times 10^3 km$

B. $12 \times 10^3 km$

C. $27 \times 10^3 km$

D. $18 \times 10^3 km$

Answer: A



[Watch Video Solution](#)

114. A 50MHz sky wave takes 4.04 ms to reach a receiver via retransmission from a satellite 600km above earth's surface. Assuming retransmission time by satellite negligible, find the distance between source and receiver.

A. 606km

B. 170km

C. 340km

D. 280km

Answer: B



Watch Video Solution

115. What should be the length of the dipole antenna for a carrier wave of frequency 3×10^8 Hz?

A. 1m

B. 0.5m

C. 2m

D. 2.5 m

Answer: B

 [Watch Video Solution](#)

116. A radio can tune to any station to 7.3 MHz to 12 MHz band. The corresponding wavelength band is

A. 25m-40m

B. 10m-30m

C. 20-40m

D. 25m-35m

Answer: A

 [Watch Video Solution](#)

117. On a particular day, the maximum frequency reflected from the ionosphere is 10 MHz. On another day, it was found to increase to 11 MHz. Calculate the ratio of the maximum electron densities of the ionosphere on the two days. Point out a plausible explanation for this.

A. 1.21

B. 0.82

C. 0.50

D. 0.25

Answer: A



Watch Video Solution

118. In frequency modulation

A. the amplitude of modulated wave varies as frequency of carrier wave

B. the frequency of modulated wave varies as amplitude of modulating wave

C. the amplitude of modulated wave varies as amplitude of carrier wave

D. the frequency of modulated wave varies as frequency of modulating wave

Answer: D



[Watch Video Solution](#)

119. Audio signal cannot be transmitted because

- A. the signal has more noise.
- B. the signal cannot be amplified for distance communication.
- C. the transmitting antenna length is very small to design.
- D. the transmitting antenna length is very large and impracticable.

Answer: D



[Watch Video Solution](#)

120. The modulation in which pulse. Duration varies in accordance with the modulating signal is called

A. PAM

B. PPM

C. PWM

D. PCM

Answer: C



[Watch Video Solution](#)

121. Of the following which is preferred modulation scheme for digital communication.

A. PCM

B. PAM

C. PPM

D. PTM

Answer: A



Watch Video Solution

122. If both the length of an antenna and the wavelength of the signal to be transmitted are doubled, the power radiated by the antenna

A. is doubled

B. is halved

C. remains constant

D. is quadrupled

Answer: C



Watch Video Solution

123. A 300W carrier is modulated to a depth 75%. The total power in the modulated wave is

- A. 200W
- B. 284W
- C. 320W
- D. 384W

Answer: D



[Watch Video Solution](#)

124. An audio signal of 15 KHz frequency cannot be transmitted over long distances without modulation because

- A. the size of the required antenna would be least 5 km which is not convenient.
- B. the audio signal can not be transmitted through sky waves.

C. effective power transmitted would be very low. If the size of the antenna is less than 5 km.

D. all of these

Answer: D



[Watch Video Solution](#)

125. A signal wave of frequency 12 kHz is modulated with a carrier wave of frequency 2.51 MHz. The upper and lower side band frequencies are respectively.

A. 2512 KHz and 2508KHz

B. 2522KHz and 2488KHz

C. 2502KHz and 2498KHz

D. 2522KHz and 2498KHz

Answer: D



[Watch Video Solution](#)

126. A message signal of frequency 10 KHz and peak voltage of 10V is used to modulate a carrier of frequency 1 MHz and peak voltage of 20V. The frequency of the side bands produced is

- A. 1000 KHz, 990KHz
- B. 1010KHz,990KHz
- C. 990KHz,1000KHz
- D. 1010KHz,1000KHz

Answer: B



[Watch Video Solution](#)

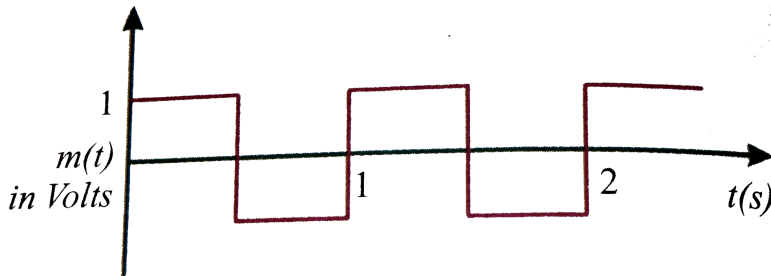
127. The maximum amplitude of an amplitude modulated wave is found to be 15V while its minimum amplitude is found to be 3V. The modulation index is

- A. $\frac{3}{2}$
- B. $\frac{2}{3}$
- C. $\frac{1}{2}$
- D. $\frac{1}{3}$

Answer: B

 [Watch Video Solution](#)

128. A modulating signal is a square wave as shown in figure.



The carrier wave is given by

$$c(t) = 2 \sin(8\pi t) \text{ volt.}$$

The modulation index is

- A. 0.2

B. 0.3

C. 0.4

D. 0.5

Answer: D



[Watch Video Solution](#)

129. A sinusoidal voltage amplitude modulates another sinusoidal voltage of amplitude 2kV to result in two sidebands, each of amplitude 200V the modulation index is

A. 0.2

B. 0.3

C. 0.4

D. 0.5

Answer: A



[Watch Video Solution](#)

130. In an amplitude modulation with modulation index 0.5 the ratio of the carrier wave to that of side band in the modulated wave is

A. 4:1

B. 1:4

C. 1:3

D. 2:1

Answer: A



[Watch Video Solution](#)

131. A carrier wave of peak voltage $12V$ is used to transmit a message signal. The peak voltage of the modulating signal in order to have a modulation index of 75 % is

A. 6V

B. 7V

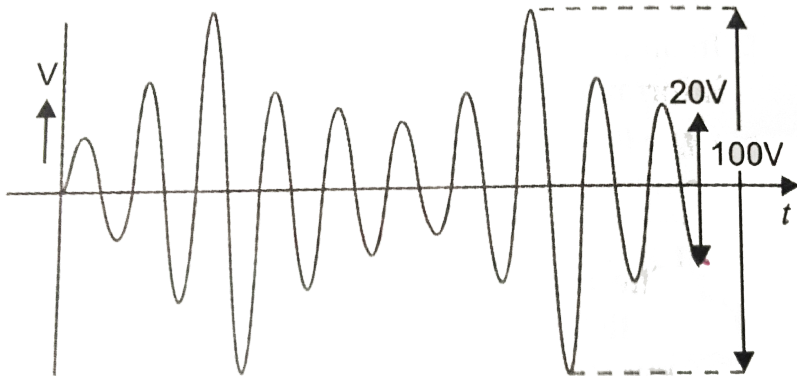
C. 8V

D. 9V

Answer: D

 [Watch Video Solution](#)

132. An amplitude modulated wave is as shown in figure. Calculate (i) the percentage modulation, (ii) peak carrier voltage and , (iii) peak value of information voltage.



A. 30V,20V

B. 10V,15V

C. 15V,30V

D. 20V,35V

Answer: A



Watch Video Solution

133. The LC product of a tuned amplifier circuit require to generate a carrier wave of 1 MHz for amplitude modulation is

A. $1.5 \times 10^{-14} s$

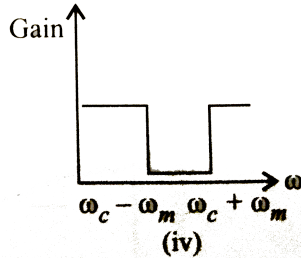
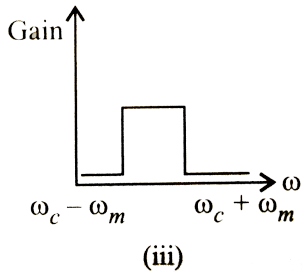
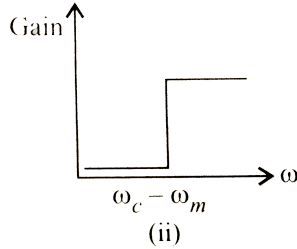
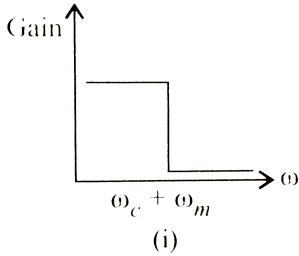
B. $1.2 \times 10^{-12} s$

C. $3.2 \times 10^{-12} s$

D. $2.5 \times 10^{-14} s$

Answer: D

134. The frequency response curve (as shown in figure below) for the filter circuit used for production of AM wave should be



- A. i followed by ii
- B. ii followed by i
- C. iii
- D. all of these

Answer: D



[Watch Video Solution](#)

135. In which of the following remote sensing technique is not used?

- A. Medical treatment
- B. Pollution
- C. Wetland mapping
- D. Ground water survey

Answer: A



[Watch Video Solution](#)

136. Identify the incorrect statement from the following

- A. AM detection is carried out using a rectifier and an envelope detector.

B. Pulse position denotes the time of rise or fall of the pulse amplitude.

C. Modulation index μ is kept ≥ 1 , to avoid distortion.

D. Facsimile (FAX) scans the contents of the document to create electronic signals.

Answer: C



[Watch Video Solution](#)

137. The essential condition for demodulation is

A. $v_c < RC$

B. $\frac{1}{v_c} < RC$

C. $\frac{1}{v_c} > RC$

D. $v_c > RC$

Answer: B



Watch Video Solution

138. In a diode AM detector with the output circuit consists of $R=1M\Omega$ and $C = 1pF$ would be more suitable for detecting a carrier signal of

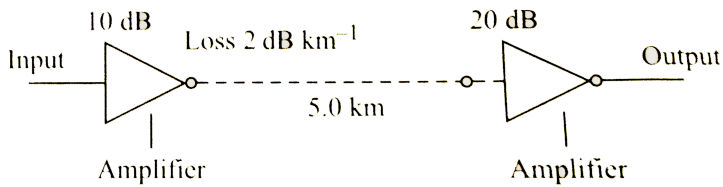
- A. 1MHz
- B. 0.1 MHz
- C. 0.5MHz
- D. 10MHz

Answer: D



Watch Video Solution

139. Figure shows a communication system. What is the output power when input is 1.01 mW? (Gain in $dB = 10\log_{10} \frac{P_o}{P_i}$)



- A. 90mW
- B. 101mW
- C. 1112mW
- D. 120mW

Answer: B

 [Watch Video Solution](#)

140. The intensity of a light pulse travelling along a communication channel decreases exponentially with distance x according to the relation $I = I_0 e^{-\alpha x}$ where I_0 is the intensity at $x=0$ and α is the attenuation constant. The percentage decrease in intensity after a distance of $\left(\frac{\ln 4}{\alpha}\right)$ is

A. 0.7

B. 0.75

C. 0.8

D. 0.85

Answer: B



[Watch Video Solution](#)

Hots

1. An audio signal is modulated by a carrier wave of 20 MHz such that the bandwidth required for modulation is 3 kHz. Could this wave be demodulated by a diode detector which has the values of R and C as (i) $R = 1k\Omega, C = 0.01\mu F$ (ii) $R = 10k\Omega, C = 0.01\mu F$ (iii) $R = 10k\Omega, C = 1\mu F$.

A. $R = 1k\Omega, C = 0.01\mu F$

B. $R = 10k\Omega, C = 0.01\mu F$

C. $R = 10k\Omega, C = 0.1pF$

D. None of these

Answer: A



[Watch Video Solution](#)

2. A multimode graded index fibre exhibits total pulse broadening of 0.1 us cover a distance of 1.5km. What is the maximum possible band width on the link assuming no inter symbol interference?

A. 10MHz

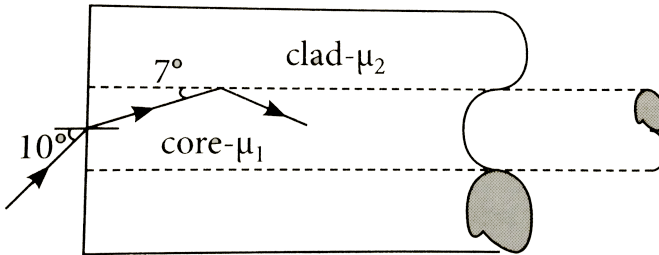
B. 7.5M Hz

C. 5MHz

D. 2.5MHz

Answer: C

3. Refer figure. Core has refractive index $\mu_1 = 1.424$. The cladding refractive index $\mu_2 = 1.39$. In such a case. Will the light beam propagate?



A. Yes

B. No

C. Data given insufficient to decide

D. the beam propagation is not affected with refractive indices of fibre core and cladding.

Answer: A

4. Three waves A, B and C of frequencies 1500 KHz, 6MHz and 50 MHz respectively are to be transmitted from one place to another. Which of the following is the most appropriate mode of communication?

A. A is transmitted via space wave while B and C are transmitted via sky wave

B. A is transmitted via ground wave, B via sky wave and C via space wave

C. B and C transmitted via ground wave while A is transmitted via sky wave

D. B is transmitted via ground wave while A and C are transmitted via space wave

Answer: B



[Watch Video Solution](#)

5. If the sum of the heights of transmitting and receiving antennas in line of sight of communication is fixed at h , show that the range is maximum when the two antennas have a height $h/2$ each.

A. $h/2$

B. $2h$

C. h

D. $4h$

Answer: A



Watch Video Solution

6. Optical communication system having an operating wavelength λ metre can use only $x\%$ of its source frequency as its channel band width. The system is to be used for transmitting T.V signals requiring a band width of F hertz. How many channels can this system transmit

simultaneously? Show graphically how this number of channels varies with operating wavelength of the system.

A. $\lambda F / Cx$

B. $2C_x / 100\lambda F$

C. $cx / 50\lambda F$

D. $cx / 100\lambda F$

Answer: D



Watch Video Solution

7. Estimate the fastest bit rate capable of being carried by light of wavelength $1.3\mu m$. How many phone calls could be carried at this bit rate ? Band width of optical fibre = 2 GHz.

A. 2.9×10^7

B. 1.5×10^6

C. 2.3×10^5

D. 1.7×10^4

Answer: C



Watch Video Solution

8. The carrier frequency of a station is 40 MHz. A resistor of $10k \Omega$ and capacitor of CpF are available in the detector circuit. The possible value of C will be

A. 12

B. 8.2

C. 5.6

D. All of these

Answer: D



Watch Video Solution

9. A ground receiving station is receiving a signal at 6MHz transmitted from a ground transmitter at a height of 500m located at a distance of 100km. If radius of earth is 6.4×10^6 m, maximum number density of electron in ionosphere is $10^{12}m^{-3}$. the signal is coming via:

- A. ground wave
- B. space wave
- C. Sky wave propagation is useful in the range of 30 to 40 MHz.
- D. satellite transponder

Answer: C



[Watch Video Solution](#)

10. The output current of an 80% modulating amplitude modulated generator is 1.8A. To what value will the current rise if the generator is additionally modulated by another audiowave of modulation index 0.6?

- A. 1.71A

B. 1.81A

C. 1.91A

D. 2.01A

Answer: C



Watch Video Solution

11. An audio signal is modulated by a carrier wave of 20 MHz such that the bandwidth required for modulation is 3KHz. Could this wave be demodulated by a diode detector which has the values of R and C as

A. $R = 1k\Omega, C = 0.01\mu E$

B. $R = 10k\Omega, C = 0.01\mu F$

C. $R = 10k\Omega, C = 0.1pF$

D. None of these

Answer: A



[Watch Video Solution](#)

12. A multimode graded index fibre exhibits total pulse broadening of 0.1 us cover a distance of 1.5km. What is the maximum possible band width on the link assuming no inter symbol interference?

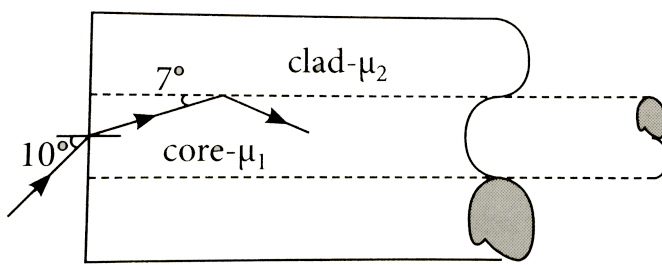
- A. 10MHz
- B. 7.5M Hz
- C. 5MHz
- D. 2.5MHz

Answer: C



[Watch Video Solution](#)

13. Refer figure. Core has refractive index $\mu_1 = 1.424$. The cladding refractive index $\mu_2 = 1.39$. In such a case. Will the light beam propagate?



A. Yes

B. No

C. Data given insufficient to decide

D. the beam propagation is not affected with refractive indices of fibre core and cladding.

Answer: A

[Watch Video Solution](#)

14. Three waves A,B and C of frequencies 1500 KHz. 6MHz and 50 MHz respectively are to be transmitted from one place to another. Which of the following is the most appropriate mode of communication?

A. A is transmitted via space wave while B and C are transmitted via sky wave

B. A is transmitted via ground wave, B via sky wave and C via space wave

C. B and C transmitted via ground wave while A is transmitted via sky wave

D. B is transmitted via ground wave while A and C are transmitted via space wave

Answer: B

 [Watch Video Solution](#)

15. The sum of the heights of transmitting and receiving antennas in line of sight of communication is fixed at h , find the height of two antennas when range is maximum.

A. $h/2$

B. 2h

C. h

D. 4h

Answer: A



Watch Video Solution

16. An optical communication system. Having an operating wavelength λ (in metres), can use only $x\%$ of its source frequency as its channel bandwidth. The system is to be used for transmitting TV signals requiring a bandwidth of F hertz. How many channels can this system transmit simultaneously?

A. $\lambda F / Cx$

B. $2C_x / 100\lambda F$

C. $cx / 50\lambda F$

D. $cx / 100\lambda F$

Answer: D



Watch Video Solution

17. Estimate the fastest bit rate capable of being carried by light of wavelength $1.3\mu m$. How many phone calls could be carried at this bit rate ? Band width of optical fibre = 2 GHz.

A. 2.9×10^7

B. 1.5×10^6

C. 2.3×10^5

D. 1.7×10^4

Answer: C



Watch Video Solution

18. The carrier frequency of a station is 40 MHz. A resistor of $10\text{k}\ \Omega$ and capacitor of 12 pF are available in the detector circuit. The possible value of C will be

A. 12

B. 8.2

C. 5.6

D. All of these

Answer: D



[Watch Video Solution](#)

19. A ground receiving station is receiving a signal at 6MHz transmitted from a ground transmitter at a height of 500m located at a distance of 100km. If radius of earth is $6.4 \times 10^6\text{m}$, maximum number density of electron in ionosphere is 10^{12}m^{-3} . the signal is coming via:

A. ground wave

B. space wave

C. Sky wave propagation is useful in the range of 30 to 40 MHz.

D. satellite transponder

Answer: C



Watch Video Solution

20. The output current of an 80% modulating amplitude modulated generator is 1.8A. To what value will the current rise if the generator is additionally modulated by another audiowave of modulation index 0.6?

A. 1.71A

B. 1.81A

C. 1.91A

D. 2.01A

Answer: C



Watch Video Solution

Ncert

1. Three waves A,B and C of frequencies 1600 kHz, 5 MHz and 60 MHz, respectively are to be transmitted from one place to another.Which of the following is the appropriate mode of communication?

A. A is transmitted via space wave while B and C are transmitted via sky wave

B. A is transmitted via ground wave, B via sky wave and C via space wave

C. B and C transmitted via ground wave while A is transmitted via sky wave

D. B is transmitted via ground wave while A and C are transmitted via space wave.

Answer: B



[Watch Video Solution](#)

2. A $100m$ long antenna is mounted on a $500m$ tall building. The complex can become a transmission tower of waves with λ

A. $- 400m$

B. $- 25m$

C. $- 150m$

D. $- 2400m$

Answer: A



[Watch Video Solution](#)

3. A 1kW signal is transmitted using a communication channel which provides attenuation at the rate of -2 dB per km. if the communication channel has a total length of 5 km, the power of the signal received is

$$\text{gain in dB} = 10\log\left(\frac{P_0}{P_i}\right)$$

A. 900W

B. 100W

C. 990W

D. 1010W

Answer: B



[Watch Video Solution](#)

4. A speech signal of 3kHz is used to modulate a carrier signal of frequency 1MHz , using amplitude modulation. The frequencies of the side bands will be

A. 1.003 MHz and 0.997 MHz

B. 3001 KHz and 2997 KHz

C. 1003 KHz and 1000 KHz

D. 1MHz and 0.997MHz

Answer: A



Watch Video Solution

5. A message signal of frequency ω_m is superposed on a carrier wave of frequency ω_c to get an amplitude modulated wave (AM). The frequency of the AM wave will be

A. ω_m

B. ω_c

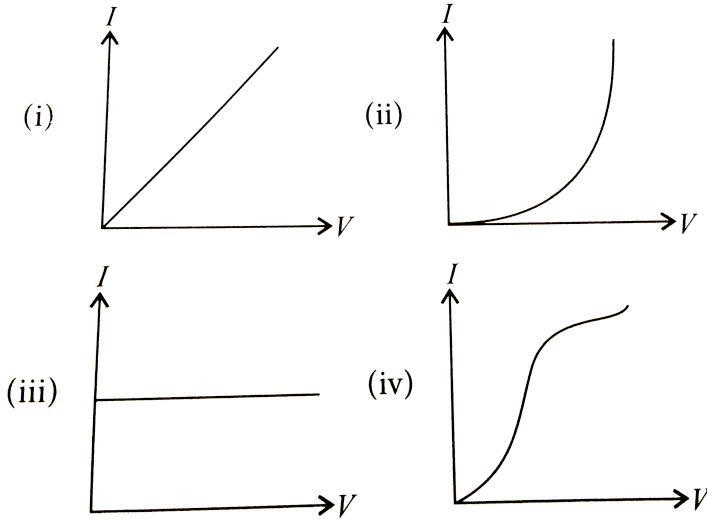
C. $\frac{\omega_c + \omega_m}{2}$

D. $\frac{\omega_c - \omega_m}{2}$

Answer: B



6. I-V characteristics of four devices are shown in figure.



Identify devices that can be used for modulation

- A. (i) and (iii)
- B. Only (iii)
- C. (ii) and some regions of (iv)
- D. All the devices can be used

Answer: C



[Watch Video Solution](#)

7. A male voice after modulation-transmission sounds like that of a female to the receiver. The problem is due to

- A. poor selection of modulation index (selected $0 < m < 1$)
- B. poor bandwidth selection of amplitudes
- C. poor selection of carrier frequency
- D. loss of energy in transmission

Answer: B



[Watch Video Solution](#)

8. A basic communication system consists of (A) transmitter (B) information source (C) user of information (D) channel (E) receiver`

Choose the correct sequence in which these are arranged in a basic communication system.

A. ABCDE

B. BADEC

C. BDACE

D. BEADC

Answer: B



[Watch Video Solution](#)

9. Identify the mathematical expression for amplitude modulated wave:

A. $A_c \sin(\omega_c + k_1 v_m(t)t + \phi)$

B. $A_c \sin(\omega_c t + \phi + k_2 v_m(t))$

C. $(A_c + k_2 v_m(t)) \sin(\omega_c t + \phi)$

D. $A_c v_m(t) \sin(\omega_c t + \phi)$

Answer: C



[Watch Video Solution](#)

1. Assertion: Telephony is an example of point-to-point communication mode.

Reason: In point to-point communication modes, communication takes place over a link between a single transmitter and a receiver.



[Watch Video Solution](#)

2. Assertion: The loss of strength of a signal while propagating through a medium is known as attenuation.

Reason: Transmitter helps to avoid attenuation.



[Watch Video Solution](#)

3. Assertion: Amplification is necessary to compensate for the attenuation of the signal in communication system.

Reason: Amplification is the process of increasing the amplitude and consequently the strength of a signal using an electronic circuit.

 [Watch Video Solution](#)

4. Assertion: The process of retrieval of information from the carrier wave at the receiver is termed as modulation.

Reason: Repeater helps to modulate the signals.

 [Watch Video Solution](#)

5. Assertion: Digital signals are continuous variations of voltage of current.

Reason: Digital signals are essentially single valued functions of time.

A. A and R both are true and R is correct explanation of A

B. A is correct but R is wrong

C. A is wrong but R is true

D. Both are wrong

Answer: D



Watch Video Solution

6. Assertion: Microwave communication is preferred over optical communication.

Reason: Information carrying capacity is directly proportional to bandwidth.

A. Both A and R are correct and R is correct explanation of A

B. A is true but R is wrong

C. A is wrong but R is true

D. Both A and R are wrong

Answer: A



[Watch Video Solution](#)

7. Assertion: The ionosphere layer acts as a reflector for all range of frequencies.

Reason: Ionosphere does not allow electromagnetic wave to penetrate and escape.

- A. Both A and R are correct and R is correct explanation of A
- B. A is correct but R is wrong
- C. A is wrong but R is correct
- D. Both A and R are wrong

Answer: D



[Watch Video Solution](#)

8. Assertion: It is possible to transmit signals from one place on the earth to practically other place on earth.

Reason: A geostationary satellite orbiting the earth is used for transmission.

A. Both A and R are true and R is correct explanation of A

B. A is true but R is wrong

C. A is wrong but R is true

D. Both are wrong

Answer: A



Watch Video Solution

9. Statement-1: Short wave band are used for transmission fo radiowaves to a large distance.

Statement-2: Short waves are reflected from ionosphere.

- A. Both statement 1 and 2 are correct and 2 is correct explanation of 1
- B. 1 is correct but 2 is wrong
- C. 1 is wrong but 2 is correct
- D. Both are wrong

Answer: A



[Watch Video Solution](#)

10. Assertion : The information contained in our original low frequency baseband signal is to be translated into high or radio frequencies before transmission.

Reason: For transmitting a signal, the antenna should have a size comparable to the wave length of the signal.

- A. A and R both are true and R is correct explanation of A
- B. A is true but R is wrong
- C. A is wrong but R is true

D. Both A and R are wrong

Answer: A



[Watch Video Solution](#)

11. Assertion: Long distance communication between two points on the earth is achieved using sky waves.

Reason: sky wave propagation takes place above. The frequency of 30 MHz.

A. Both A and R are true and R is correct explanation of A

B. A is true but R is wrong

C. A is wrong but R is true

D. Both are wrong

Answer: C



[Watch Video Solution](#)

12. Assertion: The television signals are propagated through sky waves.

Reason: Television signals have frequency in the range of 1000MHz to 2000MHz range.

A. a) A and R both are true and R is correct explanation of A

B. b) A is true but R is false

C. c) A is false but R is true

D. d) Both are false

Answer: D



Watch Video Solution

13. Assertion: Space waves are used for line -of -sight communication.

Reason: Space wave travels in a straight line from transmitting antenna to the receiving antenna.

A. A and R both are true and R is correct explanation of A

B. A is true but R is false

C. A is false but R is true

D. Both are false

Answer: A



Watch Video Solution

14. Assertion: When the height of a TV transmission tower is increased by three times. The range covered is doubled.

Reason: The range covered is proportional to the height of the TV transmission tower.

A. a) A and R both are true and R is correct explanation of A

B. b) A is true but R is false

C. c) A is false but R is true

D. d) Both A and R are false

Answer: C



[Watch Video Solution](#)

15. Assertion: AM detection is the process of recovering the modulating signal from amplitude modulated waveform which is carried out using a rectifier and an envelope detector.

Reason: Amplitude modulated waves can be produced by application of the message signal and the carrier wave to a non-linear device followed by band pass filter.

- A. a) A and R both are true and R is correct explanation of A
- B. b) A is true but R is false
- C. c) A is false but R is true
- D. d) Both A and R are false

Answer: B



[Watch Video Solution](#)

Introduction

1. Who invented world wide web?

- A. J.C.R. Licklider
- B. Tim Berners-Lee
- C. Alexander Graham Bell
- D. Samuel F.B. Morse

Answer: B



[Watch Video Solution](#)

2. Who invented world wide web?

- A. J.C.R. Licklider
- B. Tim Berners-Lee

C. Alexander Graham Bell

D. Samuel F.B. Morse

Answer: B



[Watch Video Solution](#)

Elements Of A Communication System

1. Essential elements of a communication system are

A. transmitter and receiver

B. reciever and communication channel

C. transmitter and communication channel

D. transmitter, comunication channel and receiver

Answer: D



[Watch Video Solution](#)

2. Which of the following is an example of point to point communication mode?

- A. Radio
- B. Television
- C. Telephony
- D. All of these

Answer: C



[Watch Video Solution](#)

3. Essential elements of a communication system are

- A. transmitter and receiver
- B. receiver and communication channel
- C. transmitter and communication channel

D. transmitter, communication channel and receiver

Answer: D

 [Watch Video Solution](#)

4. Which of the following is an example of point to point communication mode?

A. Radio

B. Television

C. Telephony

D. All of these

Answer: C

 [Watch Video Solution](#)

1. Which among following is not a basic terminology used in electronic communication systems?

- A. Transducer
- B. Transmitter
- C. Telegraph
- D. Attenuation

Answer: C



[Watch Video Solution](#)

2. Which of the following is not transducer?

- A. Loudspeaker
- B. Amplifier
- C. Microphone
- D. All of these

Answer: B



Watch Video Solution

3. The loss of strength of a signal while propagating through a medium is known as

- A. reception
- B. absorption
- C. transmission
- D. attenuation

Answer: D



Watch Video Solution

4. The process of increasing the strength of a signal using an electronic circuit is called.

- A. amplification
- B. modulation
- C. demodulation
- D. transmission

Answer: A

 [Watch Video Solution](#)

5. Modem is a device which performs

- A. modulation
- B. demodulation
- C. rectification
- D. modulation and demodulation

Answer: D

 [Watch Video Solution](#)

6. Modulation is the process of superposing

- A. low frequency audio signal on high frequency radio waves.
- B. low frequency radio signals on low frequency audio wave.
- C. high frequency radio signal on low frequency audio signal.
- D. high frequency audio signal on low frequency radio waves.

Answer: A



[Watch Video Solution](#)

7. The device which is a combination of a receiver and a transmitter is

- A. Amplifier
- B. Repeater
- C. Transducer

D. Modulator

Answer: B



[Watch Video Solution](#)

8. Which among following is not a basic terminology used in electronic communication systems?

A. Transducer

B. Transmitter

C. Telegraph

D. Attenuation

Answer: C



[Watch Video Solution](#)

9. Which of the following is not transducer?

A. Loudspeaker

B. Amplifier

C. Microphone

D. All of these

Answer: B



[Watch Video Solution](#)

10. The loss of strength of a signal while propagating through a medium is known as

A. reception

B. absorption

C. transmission

D. attenuation

Answer: D



Watch Video Solution

11. The process of increasing the strength of a signal using an electronic circuit is called.

- A. amplification
- B. modulation
- C. demodulation
- D. transmission

Answer: A



Watch Video Solution

12. Modem is a device which performs

- A. modulation
- B. demodulation
- C. rectification
- D. modulation and demodulation

Answer: D

 [Watch Video Solution](#)

13. Modulation is the process of superposing

- A. low frequency audio signal on high frequency radio waves.
- B. low frequency radio signals on low frequency audio wave.
- C. high frequency radio signal on low frequency audio signal.
- D. high frequency audio signal on low frequency radio waves.

Answer: A

 [Watch Video Solution](#)

14. The device which is a combination of a receiver and a transmitter is

- A. Amplifier
- B. Repeater
- C. Transducer
- D. Modulator

Answer: B



Watch Video Solution

Bandwidth Of Signals

1. Large bandwidth for higher data rate is achieved by using

- A. high frequency carrier wave
- B. high frequency audio wave

C. low frequency carrier wave

D. low frequency audio wave

Answer: A



[Watch Video Solution](#)

2. In a video signal for transmission of picture. What value of bandwidth is used in communication system?

A. 2.4 MHz

B. 4.2MHz

C. 24MHz

D. 42MHz

Answer: B



[Watch Video Solution](#)

3. Large bandwidth for higher data rate is achieved by using

- A. high frequency carrier wave
- B. high frequency audio wave
- C. low frequency carrier wave
- D. low frequency audio wave

Answer: A



Watch Video Solution

4. In a video signal for transmission of picture. What value of bandwidth is used in communication system?

- A. 2.4 MHz
- B. 4.2MHz
- C. 24MHz
- D. 42MHz

Answer: B



Watch Video Solution

Bandwidth Of Transmission Medium

1. Which one of the following statement is correct?

- A. a. A single geostationary satellite can cover the whole part of the earth for microwave communication.
- B. b. Atleast three geotationary satellities in the same orbit around earth can cover the whole part of the earth for microwave communication.
- C. c. The first Indian communication satellite is Telstar.
- D. d.The satellite communication is not like the line of sight microwave communication.

Answer: B



Watch Video Solution

2. Which of the following is an example of broadcast mode of communication?

- A. Radio
- B. Television
- C. Mobile
- D. Both a and b

Answer: D



Watch Video Solution

3. Which of the following device is full duplex?

A. Mobile phone

B. Walky-talky

C. Loud speaker

D. Radio

Answer: A



[Watch Video Solution](#)

4. FM broadcast is preferred over AM broadcast because

A. it is less noisy.

B. reproduction is of much better quality.

C. it is more noisy.

D. both a and b

Answer: D



[Watch Video Solution](#)

5. The frequency band used in the downlink of a satellite communication is

- A. 9.5 to 2.5 GHz
- B. 8.96 to 0.901 MHz
- C. 3.7 to 4.2 GHz
- D. 840 to 935 MHz

Answer: C



Watch Video Solution

6. The radio waves of frequency 300MHz to 3000MHz belong to

- A. high frequency band
- B. very high frequency band
- C. ultra high frequency band

D. super high frequency band

Answer: B



[Watch Video Solution](#)

7. For base station to mobile communication, the required frequency band is

A. 540-1600 KHz

B. 200-325MHz

C. 5.9-6.42GHz

D. 840-935 MHz

Answer: D



[Watch Video Solution](#)

8. Match the column I with column II.

Column I (Service)		Column II (Frequency bands)	
(A)	Television	(p)	896-935 MHz
(B)	Cellular Mobile Radio	(q)	540-1600 kHz
(C)	Standard AM broadcast	(r)	54-890 MHz
(D)	FM broadcast	(s)	88-108 MHz

A. A-(q),B-(r), C-(s),D-(p)

B. A-(q),B-(s),C-(q),D-(r)

C. A-(r),B-(p),C-(q),D-(s)

D. A-(r),B-(s),C-(p) ,D-(q)

Answer: C



Watch Video Solution

9. In optical communication system operating at 1200nm, only 2% of the source frequency is available for TV t ransmission having a bandwidth of

5 MHz. the number of TV channels that can be transmitted is

- A. 2 million
- B. 10 million
- C. 0.1 million
- D. 1 million

Answer: D



[Watch Video Solution](#)

10. A microwave telephone link operating at the central frequency of 10GHz has been established if 2% of this is available for microwave communication channel. Then how many telephone channels can be simultaneously granted if each telephone is allotted a bandwidth of 8 KHz?

- A. 1.5×10^3
- B. 3.5×10^2

C. 2.5×10^4

D. 4.5×10^6

Answer: C



Watch Video Solution

11. A band width of 5 MHz is available for AM transmission. If the maximum audio signal frequency used for modulating the carrier is not to exceed 5 kHz, how many stations can be broad cast within this band simultaneously without interfering with eachother?

A. 200

B. 300

C. 400

D. 500

Answer: D



Watch Video Solution



Watch Video Solution

12. A communication between a fixed base station and several mobile units, located on ships or aircraft utilising two way radio communication in the VHF and UHF is of frequency band

- A. 3 to 30 MHz
- B. 30 to 300 MHz
- C. 30 to 470MHz
- D. 30 to 600 MHz

Answer: C



Watch Video Solution

13. Which one of the following statement is correct?

- A. A single geostationary satellite can cover the whole part of the earth for microwave communication.
- B. At least three geostationary satellites in the same orbit around earth can cover the whole part of the earth for microwave communication.
- C. The first Indian communication satellite is Telstar.
- D. The satellite communication is not like the line of sight microwave communication.

Answer: B



[Watch Video Solution](#)

14. Which of the following is an example of broadcast mode of communication?

A. Radio

B. Television

C. Mobile

D. Both a and b

Answer: D



[Watch Video Solution](#)

15. Which of the following device is full duplex?

A. Mobile phone

B. Walky-talky

C. Loud speaker

D. Radio

Answer: A



[Watch Video Solution](#)

16. FM broadcast is preferred over AM broadcast because

- A. it is less noisy.
- B. reproduction is of much better quality.
- C. it is more noisy.
- D. both a and b

Answer: D



[Watch Video Solution](#)

17. The frequency band used in the downlink of a satellite communication is

- A. 9.5 to 2.5 GHz
- B. 8.96 to 9.01 MHz
- C. 3.7 to 4.2 GHz
- D. 840 to 935 MHz

Answer: C



Watch Video Solution

18. The radio waves of frequency 300MHz to 3000MHz belong to

- A. high frequency band
- B. very high frequency band
- C. ultra high frequency band
- D. super high frequency band

Answer: B



Watch Video Solution

19. For base station to mobile communication, the required frequency band is

A. 540-1600 KHz

B. 200-325MHz

C. 5.9-6.42GHz

D. 840-935 MHz

Answer: D



Watch Video Solution

20. Match the column I with column II.

Column I (Service)		Column II (Frequency bands)	
(A)	Television	(p)	896-935 MHz
(B)	Cellular Mobile Radio	(q)	540-1600 kHz
(C)	Standard AM broadcast	(r)	54-890 MHz
(D)	FM broadcast	(s)	88-108 MHz

A. A-(q),B-(r), C-(s),D-(p)

B. A-(q),B-(s),C-(q),D-(r)

C. A-(r),B-(p),C-(q),D-(s)

D. A-(r),B-(s),C-(p) ,D-(q)

Answer: C



[Watch Video Solution](#)

21. In a communication system, operating at 1200 mm, only 2% of the source frequency is available for T.V. transmission , having a bandwidth of 5 MHz. The number of T.V. channels that can be transmitted is

A. 2 million

B. 10 million

C. 0.1 million

D. 1 million

Answer: D



[Watch Video Solution](#)

22. A microwave telephone link operating at the central frequency of 10GHz has been established if 2% of this is available for microwave communication channel. Then how many telephone channels can be simultaneously granted if each telephone is allotted a bandwidth of 8 KHz?

A. 1.5×10^3

B. 3.5×10^2

C. 2.5×10^4

D. 4.5×10^6

Answer: C



[Watch Video Solution](#)

23. A band width of 5 MHz is available for AM transmission. If the maximum audio signal frequency used for modulating the carrier is not

to exceed 5 kHz, how many stations can be broad cast within this band simultaneously without interfering with eachother?

- A. 200
- B. 300
- C. 400
- D. 500

Answer: D



[Watch Video Solution](#)

24. A communication between a fixed base station and several mobile units, located on ships or aircraft utilising two way radio communication in the VHF and UHF is of frequency band

- A. 3 to 30 MHz
- B. 30 to 300 MHz
- C. 30 to 470MHz

D. 30 to 600 MHz

Answer: C



[Watch Video Solution](#)

Propagation Of Electromagnetic Waves

1. Ground wave have wavelength

- A. a) less than that of sky waves
- B. b) greater than that of sky waves
- C. c) less than that of space waves
- D. d) equal to that of space waves

Answer: B



[Watch Video Solution](#)

2. The mode of propagation used by short wave broadcast services is

- A. space wave
- B. sky wave
- C. ground wave
- D. both a and c

Answer: B



Watch Video Solution

3. The skip zone in radio wave transmission is that range where

- A. there is no reception of either ground wave or sky wave
- B. the reception of ground wave is maximum but that of sky wave is minimum
- C. the reception of ground wave is minimum, but that of sky wave is maximum

D. the reception of both ground and sky wave is maximum.

Answer: A



[Watch Video Solution](#)

4. Which one of the following statements is wrong?

- A. Ground wave propagation can be sustained at frequencies 500 KHz to 1500 KHz.
- B. Satellite communication is useful for the frequencies above 30 MHz.
- C. Sky wave propagation is useful in the range of 30 to 40 MHz.
- D. Space wave propagation takes place through tropospheric space.

Answer: C



[Watch Video Solution](#)

5. The waves that are bent down by the ionosphere are

- A. grund waves
- B. surface waves
- C. space waves
- D. sky waves

Answer: D



[Watch Video Solution](#)

6. The maximum line-of-sight distance d_M between two antennas having heights h_T and H_R above the earth is

- A. $\sqrt{R(h_T + h_R)}$
- B. $\sqrt{2R/(h_T + h_R)}$
- C. $\sqrt{Rh_T} + \sqrt{2Rh_R}$
- D. $\sqrt{2Rh_T} + \sqrt{2Rh_R}$

Answer: D



[Watch Video Solution](#)

7. Frequencies in the UHF range normally propagate by means of

- A. ground waves
- B. sky wave
- C. surface waves
- D. space waves

Answer: D



[Watch Video Solution](#)

8. If the whole earth is to be connected by LOS communication using space waves (no restriction of antenna size or tower height), what is the

minimum no of antennaas required ? Calculate the tower height of these antennas in terms of earth's radius?

A. 2

B. 3

C. 4

D. 6

Answer: D



Watch Video Solution

9. A ground receiver in line-of-sight communication cannot receive direct waves due to

A. its low frequency

B. curvature of earth

C. its high intensity

D. smaller antenna

Answer: B



[Watch Video Solution](#)

10. Which of the following modes is used for line of sight

A. Ground wave

B. Sky wave propagation is useful in the range of 30 to 40 MHz.

C. Space wave

D. All of these

Answer: C



[Watch Video Solution](#)

11. Through which mode of propagation, the radio waves can be sent from one place to another

- A. Ground wave propagation can be sustained at frequencies 500 KHz to 1500 KHz.
- B. Sky wave propagation is useful in the range of 30 to 40 MHz.
- C. space wave propagation
- D. all of them

Answer: D



[Watch Video Solution](#)

12. Which of the following frequencies will be suitable for beyond the horizon communication using sky waves?

- A. 10KHz
- B. 10MHz

C. 1GHz

D. 1000GHz

Answer: B



[Watch Video Solution](#)

13. A TV transmitting antenna is 125 m tall. How much service area this transmitting antenna cover, if the receiving antenna is at the ground level? Radius of earth = 6400km .

A. 3258km^2

B. 4180km^2

C. 2510km^2

D. 1525km^2

Answer: A



[Watch Video Solution](#)

14. A transmitting antenna at the top of the tower has a height 18 m and the height of the receiving antenna is 32m. The maximum distance between them for satisfactory communication in line of sight mode is (Radius of earth = $6.4 \times 10^6 m$)

- A. 15.15km
- B. 21.25km
- C. 30.45km
- D. 35.42km.

Answer: D



[Watch Video Solution](#)

15. A transmitting antenna of height 20 m and the receiving antenna of height h are separated by a distance of 40km for satisfactory communication in line of sight mode. Then the value of h is

A. 40m

B. 45m

C. 30m

D. 25m

Answer: B



Watch Video Solution

16. A TV transmission tower antenna is at a height of 20m. The percentage increase in area covered in case if the receiving antenna is at ground level to that at a height of 25 m is (Radius of earth = $6.4 \times 10^6 m$)

A. 2.48

B. 348.9 %

C. 150 %

D. 360.2 %

Answer: B



Watch Video Solution

17. By what percentage will the transmission range of a T.V. tower be affected when the height of the tower is increased by 21% ?

A. 0.1

B. 0.2

C. 0.3

D. 0.4

Answer: A



Watch Video Solution

18. A TV transmission tower has a height of 240 m. Signals broadcast from this tower will be received by LOS communication at a distance of

(assume the radius of earth to be $6.4 \times 10^6 m$)

A. 100km

B. 110km

C. 55km

D. 120km

Answer: C



[Watch Video Solution](#)

19. A fax message is to be sent from Delhi to Washington via a geostationary satellite. Calculate the minimum time delay between the dispatch and its getting received. Take height of the geostationary satellite = 36000 km.

A. $72 \times 10^3 km$

B. $12 \times 10^3 km$

C. $27 \times 10^3 km$

D. $18 \times 10^3 km$

Answer: A



Watch Video Solution

20. A 50 MHz sky wave sky wave takes 4.04 ms to reach a receiver via re-transmission from a satellite 600 km above earth's surface. Assuming re-transmission time by satellite negligible, find the distance between source and receiver. If communication between the two was to be done by Line of sight (LOS) method, what should be the size of transmitting antenna ?

A. 606km

B. 170km

C. 340km

D. 280km

Answer: B



[Watch Video Solution](#)

21. What should be the length of the dipole antenna for a carrier wave of frequency 3×10^8 Hz?

A. 1m

B. 0.5m

C. 2m

D. 2.5 m

Answer: B



[Watch Video Solution](#)

22. A radio can tune to any station in 7.5 MHz to 12MHz band. The corresponding wavelength band is

A. 25m-40m

B. 10m-30m

C. 20-40m

D. 25m-35m

Answer: A



[Watch Video Solution](#)

23. On a particular day, the maximum frequency reflected from the ionosphere is 10 MHz. On another day, it was found to increase to 11 MHz. Calculate the ratio of the maximum electron densities of the ionosphere on the two days. Point out a plausible explanation for this.

A. 1.21

B. 0.82

C. 0.50

D. 0.25

Answer: A



[Watch Video Solution](#)

24. Ground wave have wavelength

- A. less than that of sky waves
- B. greater than that of sky waves
- C. less than that of space waves
- D. equal to that of space waves

Answer: B



[Watch Video Solution](#)

25. The mode of propagation used by short wave broadcast services is

- A. space wave

- B. sky wave
- C. ground wave
- D. both a and c

Answer: B



Watch Video Solution

26. The skip zone in radio wave transmission is that range where

- A. there is no reception of either ground wave or sky wave
- B. the reception of ground wave is maximum but that of sky wave is minimum
- C. the reception of ground wave is minimum, but that of sky wave is maximum
- D. the reception of both ground and sky wave is maximum.

Answer: A



[Watch Video Solution](#)

27. Which one of the following statements is wrong?

- A. Ground wave propagation can be sustained at frequencies 500 KHz to 1500 KHz.
- B. Satellite communication is useful for the frequencies above 30 MHz.
- C. Sky wave propagation is useful in the range of 30 to 40 MHz.
- D. Space wave propagation takes place through tropospheric space.

Answer: C



[Watch Video Solution](#)

28. The waves that are bent down by the ionosphere are

- A. ground waves
- B. surface waves

C. space waves

D. sky waves

Answer: D



Watch Video Solution

29. The maximum line-of -sight distance d_M between two antennas having heights h_T and H_R above the earth is

A. $\sqrt{R(h_T + h_R)}$

B. $\sqrt{2R/(h_T + h_R)}$

C. $\sqrt{Rh_T} + \sqrt{2Rh_R}$

D. $\sqrt{2Rh_T} + \sqrt{2Rh_R}$

Answer: D



Watch Video Solution

30. Frequencies in the *UHF* range normally propagate by means of:

- A. ground waves
- B. sky wave
- C. surface waves
- D. space waves

Answer: D



Watch Video Solution

31. If the whole earth is to be connected by line of sight communication using space waves (no restriction of antenna size or tower height). What is the minimum number of antennas required?

- A. 2
- B. 3
- C. 4

D. 6

Answer: D



Watch Video Solution

32. A ground receiver in line-of-sight communication cannot receive direct waves due to

- A. its low frequency
- B. curvature of earth
- C. its high intensity
- D. smaller antenna

Answer: B



Watch Video Solution

33. Which of the following modes is used for line of sight

A. Ground wave

B. Sky wave propagation is useful in the range of 30 to 40 MHz.

C. Space wave

D. All of these

Answer: C



Watch Video Solution

34. Through which mode of propagation, the radio waves can be sent from one place to another

A. Ground wave propagation can be sustained at frequencies 500 KHz to 1500 KHz.

B. Sky wave propagation is useful in the range of 30 to 40 MHz.

C. space wave propagation

D. all of them

Answer: D



Watch Video Solution

35. Which of the following frequencies will be suitable for beyond the horizon communication using sky waves?

A. 10KHz

B. 10MHz

C. 1GHz

D. 1000GHz

Answer: B



Watch Video Solution

36. A TV transmitting antenna is 81 m tall. How much service area it can cover if the receiving antenna is at the ground level? (Radius of earth = $6.4 \times 10^6 m$)

A. $3258 km^2$

B. $4180 km^2$

C. $2510 km^2$

D. $1525 km^2$

Answer: A



[Watch Video Solution](#)

37. A transmitting antenna at the top of the tower has a height 18 m and the height of the receiving antenna is 32m. The maximum distance between them for satisfactory communication in line of sight mode is (Radius of earth = $6.4 \times 10^6 m$)

A. 15.15km

B. 21.25km

C. 30.45km

D. 35.42km.

Answer: D



Watch Video Solution

38. A transmitting antenna of height 20 m and the receiving antenna of height h are separated by a distance of 40km for satisfactory communication in line of sight mode. Then the value of h is

A. 40m

B. 45m

C. 30m

D. 25m

Answer: B



[Watch Video Solution](#)

39. A TV transmission tower of antenna is at a height of 20 m. How much service area can it cover if the receiving antenna is (i) at ground level (ii) at a height of 25 m ? Calculate the percentage increase in area covered in case (ii) relative to case (i).

A. 2.48

B. 348.9 %

C. 150 %

D. 360.2 %

Answer: B



[Watch Video Solution](#)

40. By what percentage will the transmission range of a T.V. tower be affected when the height of the tower is increased by 21% ?

- A. 0.1
- B. 0.2
- C. 0.3
- D. 0.4

Answer: A



[Watch Video Solution](#)

41. A TV transmission tower has a height of 240 m. Signals broadcast from this tower will be received by LOS communication at a distance of (assume the radius of earth to be $6.4 \times 10^6 m$)

- A. 100km
- B. 110km

C. 55km

D. 120km

Answer: C



Watch Video Solution

42. A fax message is to be sent from Delhi to Washington via a geostationary satellite. The minimum distance between the dispatch and its getting received is (Take height of the geostationary satellite=36000km)

A. $72 \times 10^3 km$

B. $12 \times 10^3 km$

C. $27 \times 10^3 km$

D. $18 \times 10^3 km$

Answer: A



Watch Video Solution

43. A 50MHz sky wave takes 4.04 ms to reach a receiver via retransmission from a satellite 600km above earth's surface. Assuming re-transmission time by satellite negligible, find the distance between source and receiver.

- A. 606km
- B. 170km
- C. 340km
- D. 280km

Answer: B

[Watch Video Solution](#)

44. What should be the length of the dipole antenna for a carrier wave of frequency 3×10^8 Hz?

- A. 1m

B. 0.5m

C. 2m

D. 2.5 m

Answer: B



[Watch Video Solution](#)

45. A radio can tune to any station to 7.3 MHz to 12 MHz band. The corresponding wavelength band is

A. 25m-40m

B. 10m-30m

C. 20-40m

D. 25m-35m

Answer: A



[Watch Video Solution](#)

46. On a particular day, the maximum frequency reflected from the ionosphere is 10 MHz. On another day, it was found to increase to 11 MHz. Calculate the ratio of the maximum electron densities of the ionosphere on the two days. Point out a plausible explanation for this.

- A. 1.21
- B. 0.82
- C. 0.50
- D. 0.25

Answer: A



[Watch Video Solution](#)

Modulation And Its Necessity

1. In frequency modulation

- A. the amplitude of modulated wave varies as frequency of carrier wave
- B. the frequency of modulated wave varies as amplitude of modulating wave
- C. the amplitude of modulated wave varies as amplitude of carrier wave
- D. the frequency of modulated wave varies as frequency of modulating wave

Answer: D



[Watch Video Solution](#)

2. Audio signal cannot be transmitted because

- A. the signal has more noise.
- B. the signal cannot be amplified for distance communication.

C. the transmitting antenna length is very small to design.

D. the transmitting antenna length is very large and impracticable.

Answer: D



[Watch Video Solution](#)

3. The modulation in which pulse. Duration varies in accordance with the modulating signal is called

A. PAM

B. PPM

C. PWM

D. PCM

Answer: C



[Watch Video Solution](#)

4. Which of the following is digital modulation technique?

A. PCM

B. PAM

C. PPM

D. PTM

Answer: A



[Watch Video Solution](#)

5. If both the length of an antenna and the wavelength of the signal to be transmitted are doubled, the power radiated by the antenna

A. is doubled

B. is halved

C. remains constant

D. is quadrupled

Answer: C



[Watch Video Solution](#)

6. A 300W carrier is modulated to a depth 75%. The total power in the modulated wave is

A. 200W

B. 284W

C. 320W

D. 384W

Answer: D



[Watch Video Solution](#)

7. An audio signal of 15 kHz frequency cannot be transmitted over long distance without modulation because.

- A. the size of the required antenna would be least 5 km which is not convenient.
- B. the audio signal can not be transmitted through sky waves.
- C. effective power transmitted would be very low. If the size of the antenna is less than 5 km.
- D. all of these

Answer: D



Watch Video Solution

8. In frequency modulation

- A. the amplitude of modulated wave varies as frequency of carrier wave
- B. the frequency of modulated wave varies as amplitude of modulating wave

C. the amplitude of modulated wave varies as amplitude of carrier wave

D. the frequency of modulated wave varies as frequency of modulating wave

Answer: D

 [Watch Video Solution](#)

9. Audio signal cannot be transmitted because

A. the signal has more noise.

B. the signal cannot be amplified for distance communication.

C. the transmitting antenna length is very small to design.

D. the transmitting antenna length is very large and impracticable.

Answer: D

 [Watch Video Solution](#)

10. The modulation in which pulse. Duration varies in accordance with the modulating signal is called

A. PAM

B. PPM

C. PWM

D. PCM

Answer: C



[Watch Video Solution](#)

11. Of the following which is preferred modulation scheme for digital communication.

A. PCM

B. PAM

C. PPM

D. PTM

Answer: A



[Watch Video Solution](#)

12. If both the length of an antenna and the wavelength of the signal to be transmitted are doubled, the power radiated by the antenna

A. is doubled

B. is halved

C. remains constant

D. is quadrupled

Answer: C



[Watch Video Solution](#)

13. A 300W carrier is modulated to a depth 75%. The total power in the modulated wave is

A. 200W

B. 284W

C. 320W

D. 384W

Answer: D



[Watch Video Solution](#)

14. An audio signal of 15 KHz frequency cannot be transmitted over long distances without modulation because

A. the size of the required antenna would be least 5 km which is not convenient.

B. the audio signal can not be transmitted through sky waves.

C. effective power transmitted would be very low. If the size of the antenna is less than 5 km.

D. all of these

Answer: D



[Watch Video Solution](#)

Amplitude Modulation

1. A signal wave of frequency 12 kHz is modulated with a carrier wave of frequency 2.51 MHz. The upper and lower side band frequencies are respectively.

A. 2512 KHz and 2508KHz

B. 2522KHz and 2488KHz

C. 2502KHz and 2498KHz

D. 2522KHz and 2498KHz

Answer: D



[Watch Video Solution](#)

2. A message signal of frequency 10 kHz and peak voltage 10 volt is used to modulate a carrier of frequency 1 MHz and peak voltage 20 volt. Determine (a) modulation index (b) the side bands produced.

A. 1000 KHz, 990KHz

B. 1010KHz,990KHz

C. 990KHz,1000KHz

D. 1010KHz,1000KHz

Answer: B



[Watch Video Solution](#)

3. The maximum amplitude of an AM wave is found to be 15 V while its minimum amplitude is found to be 3 V. What is the modulation index?

A. $\frac{3}{2}$

B. $\frac{2}{3}$

C. $\frac{1}{2}$

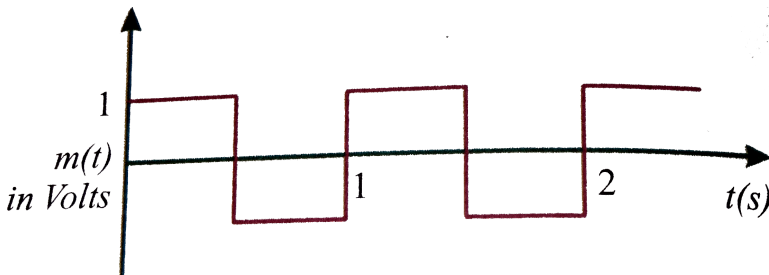
D. $\frac{1}{3}$

Answer: B



[Watch Video Solution](#)

4. A modulating signal is a square wave as shown in figure.



The carrier wave is given by

$$c(t) = 2 \sin(8\pi t) \text{ volt.}$$

The modulation index is

A. 0.2

B. 0.3

C. 0.4

D. 0.5

Answer: D



[Watch Video Solution](#)

5. A sinusoidal voltage amplitude modulates another sinusoidal voltage of amplitude 2 kV resulting in two side bands of amplitude 200 V. Find the modulation index.

A. 0.2

B. 0.3

C. 0.4

D. 0.5

Answer: A



[Watch Video Solution](#)

6. In an amplitude modulation with modulation index 0.5 the ratio of the carrier wave to that of side band in the modulated wave is

A. 4:1

B. 1:4

C. 1:3

D. 2:1

Answer: A



[View Text Solution](#)

7. A carrier wave of peak voltage $12V$ is used to transmit a message signal. The peak voltage of the modulating signal in order to have a modulation index of 75% is

A. $6V$

B. $7V$

C. $8V$

D. $9V$

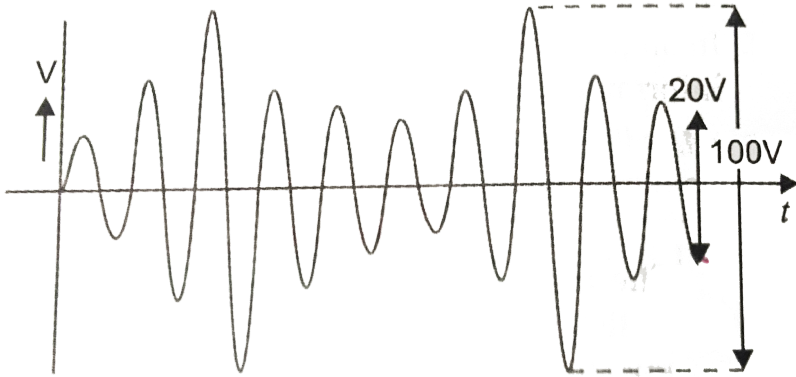
Answer: D



[View Text Solution](#)

8. An amplitude modulated wave is as shown in figure. Calculate (i) the percentage modulation, (ii) peak carrier voltage and , (iii) peak value of

information voltage.



A. 30V,20V

B. 10V,15V

C. 15V,30V

D. 20V,35V

Answer: A



[View Text Solution](#)

9. Compute LC product of a tuned amplifier circuit required to generate a carrier *wave* of $1MHz$ for amplitude modulation

A. $1.5 \times 10^{-14} \text{ s}$

B. $1.2 \times 10^{-12} \text{ s}$

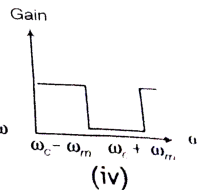
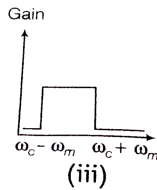
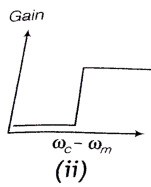
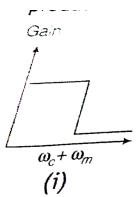
C. $3.2 \times 10^{-12} \text{ s}$

D. $2.5 \times 10^{-14} \text{ s}$

Answer: D

 **Watch Video Solution**

10. The frequency response curve (figure) for the filter circuit used for production of AM wave should be



A. i followed by ii

B. ii followed by i

C. iii

D. all of these

Answer: D



[Watch Video Solution](#)

11. A signal wave of frequency 12 kHz is modulated with a carrier wave of frequency 2.51 MHz. The upper and lower side band frequencies are respectively.

A. 2512 KHz and 2508KHz

B. 2522KHz and 2488KHz

C. 2502KHz and 2498KHz

D. 2522KHz and 2498KHz

Answer: D



[Watch Video Solution](#)

12. A message signal of frequency 10 KHz and peak voltage of 10V is used to modulate a carrier of frequency 1 MHz and peak voltage of 20V. The frequency of the side bands produced is

- A. 1000 KHz, 990KHz
- B. 1010KHz,990KHz
- C. 990KHz,1000KHz
- D. 1010KHz,1000KHz

Answer: B



[Watch Video Solution](#)

13. The maximum amplitude of an amplitude modulated wave is found to be 15V while its minimum amplitude is found to be 3V. The modulation index is

- A. $\frac{3}{2}$
- B. $\frac{2}{3}$

C. $\frac{1}{2}$

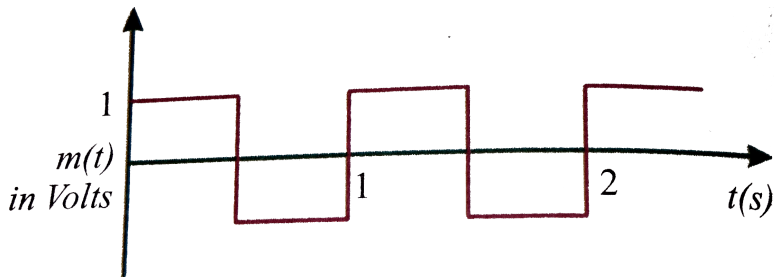
D. $\frac{1}{3}$

Answer: B



Watch Video Solution

14. A modulating signal is a square wave as shown in figure.



The carrier wave is given by

$$c(t) = 2 \sin(8\pi t) \text{ volt.}$$

The modulation index is

A. 0.2

B. 0.3

C. 0.4

D. 0.5

Answer: D



[Watch Video Solution](#)

15. A sinusoidal voltage amplitude modulates another sinusoidal voltage of amplitude 2kV to result in two sidebands, each of amplitude 200V the modulation index is

A. 0.2

B. 0.3

C. 0.4

D. 0.5

Answer: A



[Watch Video Solution](#)

16. In an amplitude modulation with modulation index 0.5 the ratio of the carrier wave to that of side band in the modulated wave is

A. 4:1

B. 1:4

C. 1:3

D. 2:1

Answer: A



[Watch Video Solution](#)

17. A carrier wave of peak voltage $12V$ is used to transmit a message signal. The peak voltage of the modulating signal in order to have a modulation index of 75 % is

A. 6V

B. 7V

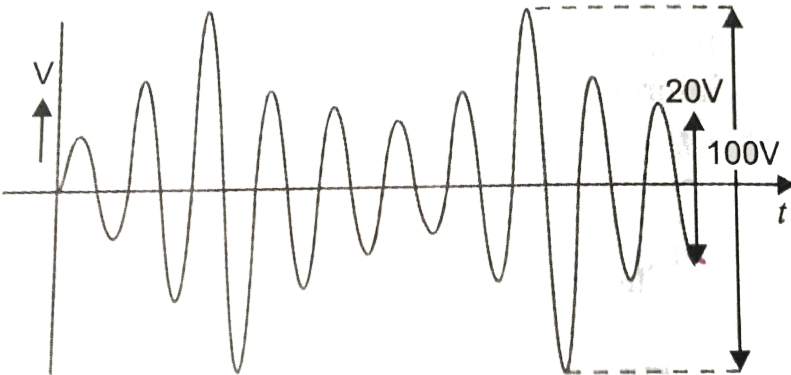
C. 8V

D. 9V

Answer: D

 [Watch Video Solution](#)

18. An amplitude modulated wave is as shown in figure. Calculate (i) the percentage modulation, (ii) peak carrier voltage and , (iii) peak value of information voltage.



A. 30V,20V

B. 10V,15V

C. 15V,30V

D. 20V,35V

Answer: A



[Watch Video Solution](#)

19. The LC product of a tuned amplifier circuit require to generate a carrier wave of 1 MHz for amplitude modulation is

A. $1.5 \times 10^{-14} s$

B. $1.2 \times 10^{-12} s$

C. $3.2 \times 10^{-12} s$

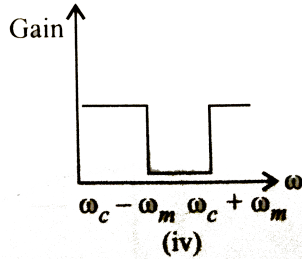
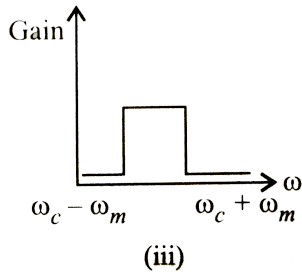
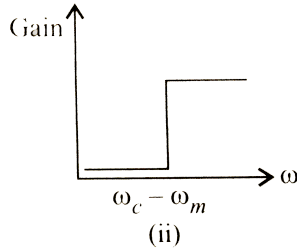
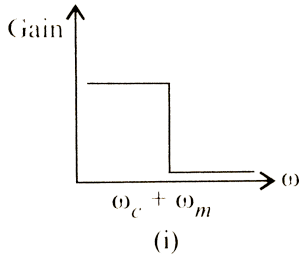
D. $2.5 \times 10^{-14} s$

Answer: D



[Watch Video Solution](#)

20. The frequency response curve (as shown in figure below) for the filter circuit used for production of AM wave should be



- A. i followed by ii
- B. ii followed by i
- C. iii
- D. all of these

Answer: D



Watch Video Solution

1. In which of the following remote sensing technique is not used?

- A. Medical treatment
- B. Pollution
- C. Wetland mapping
- D. Ground water survey

Answer: A



[Watch Video Solution](#)

2. Identify the incorrect statement from the following

- A. AM detection is carried out using a rectifier and an envelope detector.

B. Pulse position denotes the time of rise or fall of the pulse amplitude.

C. Modulation index μ is kept ≥ 1 , to avoid distortion.

D. Facsimile (FAX) scans the contents of the document to create electronic signals.

Answer: C



[Watch Video Solution](#)

3. The essential condition for demodulation is

A. $v_c < RC$

B. $\frac{1}{v_c} < RC$

C. $\frac{1}{v_c} > RC$

D. $v_c > RC$

Answer: B



Watch Video Solution

4. In a diode AM detector with the output circuit consists of $R=1M\Omega$ and $C = 1pF$ would be more suitable for detecting a carrier signal of

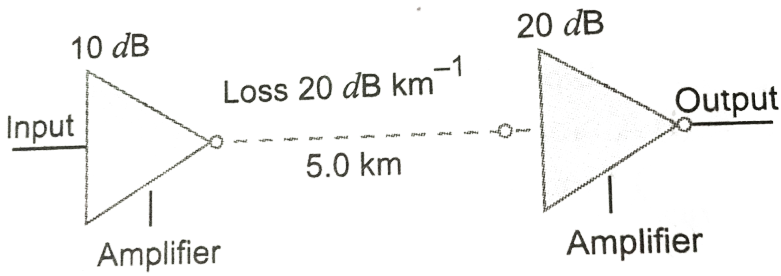
- A. 1MHz
- B. 0.1 MHz
- C. 0.5MHz
- D. 10MHz

Answer: D



Watch Video Solution

5. Figure (EP) shows a communication system. What is the output power when input signals is of 1.01 mW? [gain in $dB = 10\log_{10}(P_o / P_t)$].



- A. 90mW
- B. 101mW
- C. 1112mW
- D. 120mW

Answer: B

[Watch Video Solution](#)

6. (i) The intensity of a light pulse travelling along a communication channel decreases exponentially with distance x according to the relation $I = I_0 e^{-\alpha x}$, where I_0 is the intensity at $x = 0$ and α is the attenuation constant.

Show that the intensity reduces by 75 percent after a distance of $\frac{\ln 4}{\alpha}$

(ii) Attenuation of a signal can be expressed in decibel (dB) according to the relation

$\text{dB} = 10 \log_{10}(I/I_0)$. What is the attenuation in dB/km for an optical fibre in which the intensity falls by 50 percent over a distance of 50 km?

A. 0.7

B. 0.75

C. 0.8

D. 0.85

Answer: B



[Watch Video Solution](#)

7. In which of the following remote sensing technique is not used?

A. Medical treatment

B. Pollution

C. Wetland mapping

D. Ground water survey

Answer: A



Watch Video Solution

8. Identify the incorrect statement from the following

A. AM detection is carried out using a rectifier and an envelope detector.

B. Pulse position denotes the time of rise or fall of the pulse amplitude.

C. Modulation index μ is kept ≥ 1 , to avoid distortion.

D. Facsimile (FAX) scans the contents of the document to create electronic signals.

Answer: C



Watch Video Solution

9. The essential condition for demodulation is

A. $v_c \ll RC$

B. $\frac{1}{v_c} \ll RC$

C. $\frac{1}{v_c} \gg RC$

D. $v_c \gg RC$

Answer: B



Watch Video Solution

10. In a diode AM detector with the output circuit consists of $R=1M\Omega$ and $C = 1pF$ would be more suitable for detecting a carrier signal of

A. 1MHz

B. 0.1 MHz

C. 0.5MHz

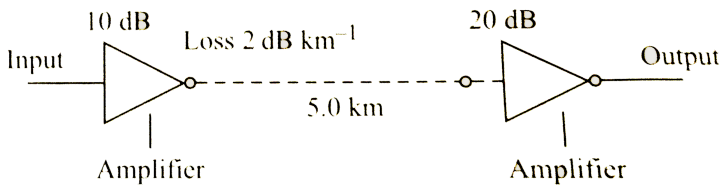
D. 10MHz

Answer: D



Watch Video Solution

11. Figure shows a communication system. What is the output power when input is 1.01 mW? (Gain in $dB = 10\log_{10} \frac{P_o}{P_i}$)



A. 90mW

B. 101mW

C. 1112mW

D. 120mW

Answer: B



Watch Video Solution

12. The intensity of a light pulse travelling along a communication channel decreases exponentially with distance x according to the relation $I = I_0 e^{-\alpha x}$ where I_0 is the intensity at $x=0$ and α is the attenuation constant. The percentage decrease in intensity after a distance of $\left(\frac{\ln 4}{\alpha}\right)$ is

A. 0.7

B. 0.75

C. 0.8

D. 0.85

Answer: B



Watch Video Solution

1. An audio signal is modulated by a carrier wave of 20 MHz such that the bandwidth required for modulation is 3 kHz. Could this wave be demodulated by a diode detector which has the values of R and C as (i) $R = 1k\Omega, C = 0.01\mu F$ (ii) $R = 10k\Omega, C = 0.01\mu F$ (iii) $R = 10k\Omega, C = 1\mu F$.

A. $R = 1k\Omega, C = 0.01\mu F$

B. $R = 10k\Omega, C = 0.01\mu F$

C. $R = 10k\Omega, C = 0.1pF$

D. None of these

Answer: A



[Watch Video Solution](#)

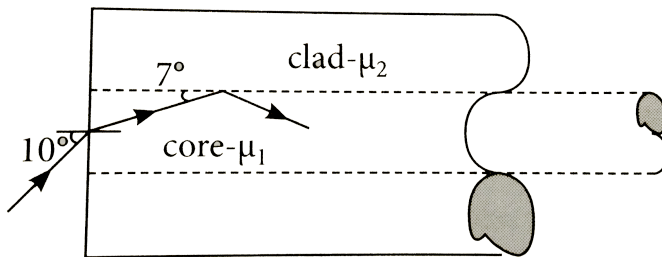
2. A multimode graded index fibre exhibits total pulse broadening of 0.1 us over a distance of 1.5km. What is the maximum possible bandwidth on the link assuming no inter symbol interference?

- A. 10MHz
- B. 7.5M Hz
- C. 5MHz
- D. 2.5MHz

Answer: C

[Watch Video Solution](#)

3. Refer figure. Core has refractive index $\mu_1 = 1.424$. The cladding refractive index $\mu_2 = 1.39$. In such a case. Will the light beam propagate?



- A. Yes
- B. No

C. Data given insufficient to decide

D. the beam propagation is not affected with refractive indices of fibre core and cladding.

Answer: A



Watch Video Solution

4. Three waves A,B and C of frequencies 1500 KHz. 6MHz and 50 MHz respectively are to be transmitted from one place to another. Which of the following is the most appropriate mode of communication?

A. A is transmitted via space wave while B and C are transmitted via sky wave

B. A is transmitted via ground wave, B via sky wave and C via space wave

C. B and C transmitted via ground wave while A is transmitted via sky wave

D. B is transmitted via ground wave while A and C are transmitted via space wave

Answer: B



[Watch Video Solution](#)

5. If the sum of the heights of transmitting and receiving antennas in line of sight of communication is fixed at h , show that the range is maximum when the two antennas have a height $h/2$ each.

A. $h/2$

B. $2h$

C. h

D. $4h$

Answer: A



[Watch Video Solution](#)

6. Optical communication system having an operating wavelength λ metre can use only $x\%$ of its source frequency as its channel band width. The system is to be used for transmitting T.V signals requiring a band width of F hertz. How many channels can this system transmit simultaneously? Show graphically how this number of channels varies with operating wavelength of the system.

A. $\lambda F / Cx$

B. $2Cx / 100\lambda F$

C. $cx / 50\lambda F$

D. $cx / 100\lambda F$

Answer: D



Watch Video Solution

7. Estimate the fastest bit rate capable of being carried by light of wavelength $1.3\mu m$. How many phone calls could be carried at this bit rate ? Band width of optical fibre = 2 GHz.

A. 2.9×10^7

B. 1.5×10^6

C. 2.3×10^5

D. 1.7×10^4

Answer: C



[Watch Video Solution](#)

8. The carrier frequency of a station is 40 MHz. A resistor of $10k \Omega$ and capacitor of CpF are available in the detector circuit. The possible value of C will be

A. 12

B. 8.2

C. 5.6

D. All of these

Answer: D



Watch Video Solution

9. A ground receiving station is receiving a signal at 6MHz transmitted from a ground transmitter at a height of 500m located at a distance of 100km. If radius of earth is 6.4×10^6 m, maximum number density of electron in ionosphere is $10^{12} m^{-3}$. the signal is coming via:

A. ground wave

B. space wave

C. Sky wave propagation is useful in the range of 30 to 40 MHz.

D. satellite transponder

Answer: C



[Watch Video Solution](#)

10. The output current of an 80% modulating amplitude modulated generator is 1.8A. To what value will the current rise if the generator is additionally modulated by another audiowave of modulation index 0.6?

- A. 1.71A
- B. 1.81A
- C. 1.91A
- D. 2.01A

Answer: C



[Watch Video Solution](#)

1. Three waves A,B and C of frequencies 1600 kHz, 5 MHz and 60 MHz, respectively are to be transmitted from one place to another. Which of the following is the appropriate mode of communication?

A. A is transmitted via space wave while B and C are transmitted via sky wave

B. A is transmitted via ground wave, B via sky wave and C via space wave

C. B and C transmitted via ground wave while A is transmitted via sky wave

D. B is transmitted via ground wave while A and C are transmitted via space wave.

Answer: B



[Watch Video Solution](#)

2. A $100m$ long antenna is mounted on a $500m$ tall building. The complex can become a transmission tower of waves with λ

A. $400m$

B. $25m$

C. $150m$

D. $2400m$

Answer: A



[Watch Video Solution](#)

3. A $1kW$ signal is transmitted using a communication channel which provides attenuation at the rate of -2 dB per km. if the communication channel has a total length of 5 km, the power of the signal received is

$$\text{gain in } dB = 10\log\left(\frac{P_0}{P_i}\right)$$

A. $900W$

B. 100W

C. 990W

D. 1010W

Answer: B



[Watch Video Solution](#)

4. A speech signal of 3kHz is used to modulate a carrier signal of frequency 1MHz , using amplitude modulation. The frequencies of the side bands will be

A. 1.003 MHz and 0.997 MHz

B. 3001 KHz and 2997 KHz

C. 1003 KHz and 1000 KHz

D. 1MHz and 0.997MHz

Answer: A

[Watch Video Solution](#)

5. A message signal of frequency ω_m is superposed on a carrier wave of frequency ω_c to get an amplitude modulated wave (AM). The frequency of the AM wave will be

A. ω_m

B. ω_c

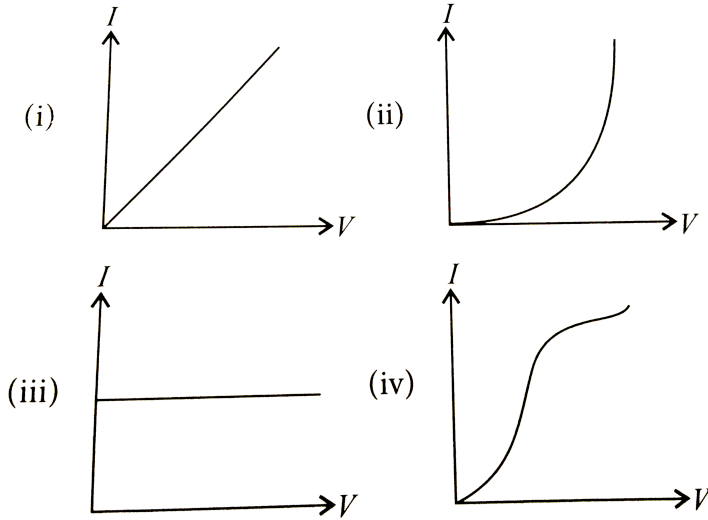
C. $\frac{\omega_c + \omega_m}{2}$

D. $\frac{\omega_c - \omega_m}{2}$

Answer: B

[Watch Video Solution](#)

6. I-V characteristics of four devices are shown in figure.



Identify devices that can be used for modulation

- A. (i) and (iii)
- B. Only (iii)
- C. (ii) and some regions of (iv)
- D. All the devices can be used

Answer: C

 [Watch Video Solution](#)

7. A male voice after modulation-transmission sounds like that of a female to the receiver. The problem is due to

- A. poor selection of modulation index (selected $0 < m < 1$)
- B. poor bandwidth selection of amplitudes
- C. poor selection of carrier frequency
- D. loss of energy in transmission

Answer: B



[Watch Video Solution](#)

8. A basic communication system consists of (A) transmitter (B) information source (C) user of information (D) channel (E) receiver`

Choose the correct sequence in which these are arranged in a basic communication system.

- A. ABCDE

B. BADEC

C. BDACE

D. BEADC

Answer: B



[Watch Video Solution](#)

9. Identify the mathematical expression for amplitude modulated wave:

A. $A_c \sin(\omega_c + k_1 v_m(t)t + \phi)$

B. $A_c \sin(\omega_c t + \phi + k_2 v_m(t))$

C. $(A_c + k_2 v_m(t)) \sin(\omega_c t + \phi)$

D. $A_c v_m(t) \sin(\omega_c t + \phi)$

Answer: C



[Watch Video Solution](#)

10. Three waves A,B and C of frequencies 1600 kHz, 5 MHz and 60 MHz, respectively are to be transmitted from one place to another. Which of the following is the appropriate mode of communication?

A. A is transmitted via space wave while B and C are transmitted via sky wave

B. A is transmitted via ground wave, B via sky wave and C via space wave

C. B and C transmitted via ground wave while A is transmitted via sky wave

D. B is transmitted via ground wave while A and C are transmitted via space wave.

Answer: B



Watch Video Solution

11. A $100m$ long antenna is mounted on a $500m$ tall building. The complex can become a transmission tower of waves with λ

A. $-400m$

B. $-25m$

C. $-150m$

D. $-2400m$

Answer: A



[Watch Video Solution](#)

12. A $1KW$ signal is transmitted using a communication channel which provides attenuation at the rate of $-2dBperkm$. If the communication channel has a total length of $5km$, the power of the signal received is

$$\left[\text{gain in } dB = 10 \log \left(\frac{P_0}{P_i} \right) \right]$$

A. $900W$

B. 100W

C. 990W

D. 1010W

Answer: B



[Watch Video Solution](#)

13. A speech signal of 3kHz is used to modulate a carrier signal of frequency 1MHz , using amplitude modulation. The frequencies of the side bands will be

A. 1.003 MHz and 0.997 MHz

B. 3001 KHz and 2997 KHz

C. 1003 KHz and 1000 KHz

D. 1MHz and 0.997MHz

Answer: A



Watch Video Solution

14. A message signal of frequency ω_m is superposed on a carrier wave of frequency ω_c to get an amplitude modulated wave (AM). The frequency of the AM wave will be

A. ω_m

B. ω_c

C. $\frac{\omega_c + \omega_m}{2}$

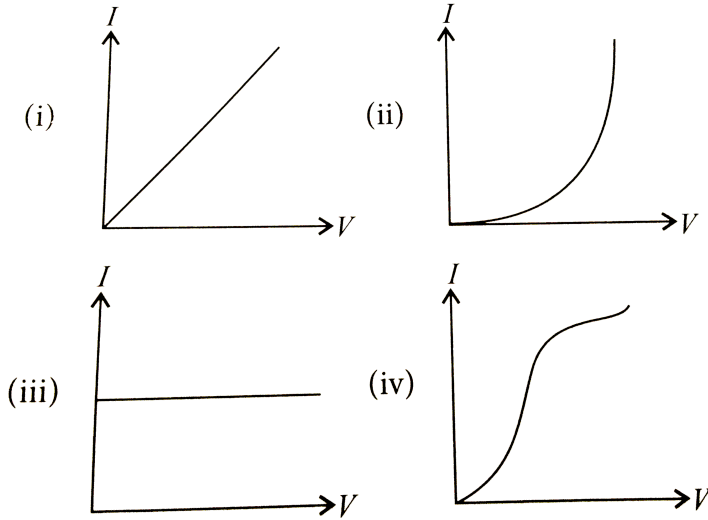
D. $\frac{\omega_c - \omega_m}{2}$

Answer: B



Watch Video Solution

15. I-V characteristics of four devices are shown in figure.



Identify devices that can be used for modulation

- A. (i) and (iii)
- B. Only (iii)
- C. (iii) and some regions of (iv)
- D. All the devices can be used

Answer: C

 [Watch Video Solution](#)

16. A male voice after modulation-transmission sounds like that of a female to the receiver. The problem is due to

- A. poor selection of modulation index (selected $0 < m < 1$)
- B. poor bandwidth selection of amplitudes
- C. poor selection of carrier frequency
- D. loss of energy in transmission

Answer: B



[Watch Video Solution](#)

17. A basic communication system consists of

- (A) transmitter (B) information source
- (C) user of information (D) channel
- (E) receiver

Choose the correct sequence in which these are arranged in a basic communication system.

A. ABCDE

B. BADEC

C. BDACE

D. BEADC

Answer: B



[Watch Video Solution](#)

18. Identify the mathematical expression for amplitude modulated wave

A. $A_c \sin(\omega_c + k_1 v_m(t)t + \phi)$

B. $A_c \sin(\omega_c t + \phi + k_2 v_m(t))$

C. $(A_c + k_2 v_m(t)) \sin(\omega_c t + \phi)$

D. $A_c v_m(t) \sin(\omega_c t + \phi)$

Answer: C



[Watch Video Solution](#)

Assertion And Reason

1. Assertion: Telephony is an example of point-to-point communication mode.

Reason: In point to-point communication modes, communication takes place over a link between a single transmitter and a receiver.



[Watch Video Solution](#)

2. Assertion: The loss of strength of a signal while propagating through a medium is known as attenuation.

Reason: Transmitter helps to avoid attenuation.



[Watch Video Solution](#)

3. Assertion: Amplification is necessary to compensate for the attenuation of the signal in communication system.

Reason: Amplification is the process of increasing the amplitude and consequently the strength of a signal using an electronic circuit.

 [Watch Video Solution](#)

4. Assertion: The process of retrieval of information from the carrier wave at the receiver is termed as modulation.

Reason: Repeater helps to modulate the signals.

 [Watch Video Solution](#)

5. Assertion: Digital signals are continuous variations of voltage of current.

Reason: Digital signals are essentially single valued functions of time.

A. A and R both are true and R is correct explanation of A

B. A is correct but R is wrong

C. A is wrong but R is true

D. Both are wrong

Answer: D



Watch Video Solution

6. Assertion: Microwave communication is preferred over optical communication.

Reason: Information carrying capacity is directly proportional to bandwidth.

A. Both A and R are correct and R is correct explanation of A

B. A is true but R is wrong

C. A is wrong but R is true

D. Both A and R are wrong

Answer: A



[Watch Video Solution](#)

7. Assertion: The ionosphere layer acts as a reflector for all range of frequencies.

Reason: Ionosphere does not allow electromagnetic wave to penetrate and escape.

- A. Both A and R are correct and R is correct explanation of A
- B. A is correct but R is wrong
- C. A is wrong but R is correct
- D. Both A and R are wrong

Answer: D



[Watch Video Solution](#)

8. Assertion: It is possible to transmit signals from one place on the earth to practically other place on earth.

Reason: A geostationary satellite orbiting the earth is used for transmission.

- A. Both A and R are true and R is correct explanation of A
- B. A is true but R is wrong
- C. A is wrong but R is true
- D. Both are wrong

Answer: A



[Watch Video Solution](#)

9. Statement-1: Short wave band are used for transmission fo radiowaves to a large distance.

Statement-2: Short waves are reflected from ionosphere.

- A. Both statement 1 and 2 are correct and 2 is correct explanation of 1
- B. 1 is correct but 2 is wrong
- C. 1 is wrong but 2 is correct
- D. Both are wrong

Answer: A

 [Watch Video Solution](#)

10. Assertion : The information contained in our original low frequency baseband signal is to be translated into high or radio frequencies before transmission.

Reason: For transmitting a signal, the antenna should have a size comparable to the wav elength of the signal.

- A. A and R both are true and R is correct explanation of A
- B. A is true but R is wrong
- C. A is wrong but R is true

D. Both A and R are wrong

Answer: A

 [Watch Video Solution](#)

11. Assertion: Long distance communication between two points on the earth is achieved using sky waves.

Reason: sky wave propagation takes place above. The frequency of 30 MHz.

A. Both A and R are true and R is correct explanation of A

B. A is true but R is wrong

C. A is wrong but R is true

D. Both are wrong

Answer: C

 [Watch Video Solution](#)

12. Assertion: The television signals are propagated through sky waves.

Reason: Television signals have frequency in the range of 1000MHz to 2000MHz range.

A. a) A and R both are true and R is correct explanation of A

B. b) A is true but R is false

C. c) A is false but R is true

D. d) Both are false

Answer: D



Watch Video Solution

13. Assertion: Space waves are used for line -of -sight communication.

Reason: Space wave travels in a straight line from transmitting antenna to the receiving antenna.

A. A and R both are true and R is correct explanation of A

B. A is true but R is false

C. A is false but R is true

D. Both are false

Answer: A



Watch Video Solution

14. Assertion: When the height of a TV transmission tower is increased by three times. The range covered is doubled.

Reason: The range covered is proportional to the height of the TV transmission tower.

A. a) A and R both are true and R is correct explanation of A

B. b) A is true but R is false

C. c) A is false but R is true

D. d) Both A and R are false

Answer: C



[Watch Video Solution](#)

15. Assertion: AM detection is the process of recovering the modulating signal from amplitude modulated waveform which is carried out using a rectifier and an envelope detector.

Reason: Amplitude modulated waves can be produced by application of the message signal and the carrier wave to a non-linear device followed by band pass filter.

- A. a) A and R both are true and R is correct explanation of A
- B. b) A is true but R is false
- C. c) A is false but R is true
- D. d) Both A and R are false

Answer: B



[Watch Video Solution](#)

16. Assertion: Telephony is an example of point-to-point communication mode.

Reason: In point to-point communication modes, communication takes place over a link between a single transmitter and a receiver.



[Watch Video Solution](#)

17. Assertion: The loss of strength of a signal while propagating through a medium is known as attenuation.

Reason: Transmitter helps to avoid attenuation.



[Watch Video Solution](#)

18. Assertion: Amplification is necessary to compensate for the attenuation of the signal in communication system.

Reason: Amplification is the process of increasing the amplitude and consequently the strength of a signal using an electronic circuit.

 [Watch Video Solution](#)

19. Assertion: The process of retrieval of information from the carrier wave at the receiver is termed as modulation.

Reason: Repeater helps to modulate the signals.

 [Watch Video Solution](#)

20. Assertion: Digital signals are continuous variations of voltage of current.

Reason: Digital signals are essentially single valued functions of time.

 [Watch Video Solution](#)

21. Assertion: Microwave communication is preferred over optical communication.

Reason: Information carrying capacity is directly proportional to bandwidth.



[Watch Video Solution](#)

22. Assertion: The ionosphere layer acts as a reflector for all range of frequencies.

Reason: Ionosphere does not allow electromagnetic wave to penetrate and escape.



[Watch Video Solution](#)

23. Assertion: It is possible to transmit signals from one place on the earth to practically other place on earth.

Reason: A geostationary satellite orbiting the earth is used for transmission.



[Watch Video Solution](#)

24. Assertion: Short wave bands are used for transmission of radio wave to a large distance.

Reason: Short waves are reflected from ionosphere.



[Watch Video Solution](#)

25. Assertion : The information contained in our original low frequency baseband signal is to be translated into high or radio frequencies before transmission.

Reason: For transmitting a signal, the antenna should have a size comparable to the wave length of the signal.



[Watch Video Solution](#)

26. Assertion: Long distance communication between two points on the earth is achieved using sky waves.

Reason: sky wave propagation takes place above. The frequency of 30 MHz.



[Watch Video Solution](#)

27. Assertion: The television signals are propagated through sky waves.

Reason: Television signals have frequency in the range of 1000MHz to 2000MHz range.



[Watch Video Solution](#)

28. Assertion: Space waves are used for line-of-sight communication.

Reason: Space wave travels in a straight line from transmitting antenna to the receiving antenna.



[Watch Video Solution](#)

29. Assertion: When the height of a TV transmission tower is increased by three times. The range covered is doubled.

Reason: The range covered is proportional to the height of the TV transmission tower.

A. A and R are true and R is the correct explanation

B. Both A and R are true but reason is not the correct explanation

C. a is true R is false

D. Both A and R are true

Answer: C



[Watch Video Solution](#)

30. Assertion: AM detection is the process of recovering the modulating signal from amplitude modulated waveform which is carried out using a rectifier and an envelope detector.

Reason: Amplitude modulated waves can be produced by application of the message signal and the carrier wave to a non-linear device followed by band pass filter.



[Watch Video Solution](#)