PHYSICS

BOOKS - DC PANDEY PHYSICS (HINGLISH)

COMMUNICATION SYSTEM

Only One Option Is Correct

1. Major parts of communications systems are:

A. transmitter and receiver

B. receiver and communication channel

C. transmitter and communication channel

D. transmitter, receiver and communication

channel

Answer: D

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2. Audio frequency range is from

A. 20 Hz to 20 kHz

B. 200 Hz to 2000 Hz

C. 2 kHz to 20 kHz

D. 20 kHz to 200 KHz

Answer: A

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3. Modulation is the phenomenon of :

A. superimposing the audio frequency signal over a carrier wave

B. separating the audio frequency signal from the carrier wave

C. separating carrier wave from the modulated wave

D. None of these

Answer: A

4. Range of frequencies allotted for commercial FM radio broadcast is

A. 88 to 108 MHz

B. 88 to 108 kHz

C. 8 to 88 MHz

D. 8 to 88 kHz

Answer: A

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5. The ground wave propagation is suitable for radio waves of frequency

    A. up to 2 MHz

    B. from 2 MHz to 20 MHz

    C. from 2 MHz to 30 MHz

    D. None of these

Answer: A

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6. The sky wave propagation is suitable for radiowaves of frequency

A. up to 2 MHz

B. from 2 MHz to 20 MHz

C. from 2 MHz to 30 MHz

D. None of these

Answer: C

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7. The ratio 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

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8. The electromagnetic waves of frequency range 100 to 300 Hz are used in

    A. sky wave propagation

    B. TV communication

    C. microwave communication

    D. ground wave communication

Answer: C

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9. Space wave propagation is used in

(a) microwave communication

(b) satellite communication

(c) TV transmission

    A. television communication

    B. radar communication

    C. microwave communication

    D. All of them

Answer: D

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10. The electromagnetic waves of frequency $80MHz$ and $200MHz$

    A. can be reflected by troposphere

    B. can be reflected by ionosphere

    C. can be reflected by mesosphere

    D. cannot be reflected by any layer of earth's atmosphere

Answer: D

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11. The air of earth's atmosphere responsible for absorbing a large portion of ultraviolet radiations by the sun is

A. mesosphere

B. troposhere

C. ozone layer

D. ionosphere

Answer: C

12. A TV tower has a height of $150m$. The area of the region covered by the TV broadcast is (Radius of earth $= 6.4 \times 10^6 m$)
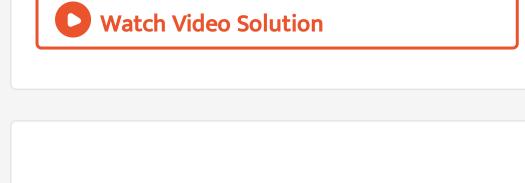
A. $9.6\pi \times 10^8 m^2$

B. $19.2\pi \times 10^7 m^2$

C. $19.2\pi \times 10^{10} m^2$

D. $19.2\pi \times 10^3 km^2$

Answer: D

13. What does the modern do?

A. Modulation only

B. Demodulation only

C. Both modulation and demodulation

D. Neither modulation nor demodulation

Answer: C

14. For a carrier frequency of 100 kHz and a modulating frequency of 5kHz what is the width of AM transmission-

A. 105 kHz

B. 95 kHz

C. 2.5 kHz

D. 10 kHz

Answer: D

15. Which of the following is digital modulation technique?

A. PDM

B. PAM

C. PCM

D. PPM

Answer: C

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16. What is the radiowaves signal called if it propagates from one place to another along the surface of the earth?

A. Sky wave

B. Ground wave

C. Carrier wave

D. Modulated wave

Answer: B

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17. 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 are 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

18. A $100m$ long anteena is mounted on a $500m$ tall building. The complex can become a transmission tower for waves with λ.

A. ~$400m$

B. ~$25m$

C. ~$150m$

D. ~$2400m$

Answer: A

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19. 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. 1 MHz and 0.997 MHz

Answer: A

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

A. ω_m

B. ω_c

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

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

Answer: B

21. 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 communicarion

system.

A. ABCDE

B. BADEC

C. BDACE

D. BEADC

Answer: B

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

A. 10 kHz

B. 10 MHz

C. 1 GHz

D. 1000 GHz

Answer: B

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

A. ground waves

B. sky waves

C. surface waves

D. space waves

Answer: D

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24. Digital signals

(i) do not provide a continuous set of values.

(ii) represents values as descrete steps.

(iii) can utillize binary system

(iv) can utillize decimal as well as binary

system.

The true option is.

A. (i) and (ii) only

B. (ii) and (iii) only

C. (i), (ii) and (iii) but not (iv)

D. All of (i), (ii), (iii) and (iv)

Answer: C

25. How many AM broadcast stations can be accommodated in a $100KHZ$ bandwidth if the highest modulating frequency of carrier is $5kHZ$?

A. 10

B. 100

C. 1000

D. 10000

Answer: A

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26. 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. $1/3$

B. $2/3$

C. $1/5$

D. $4/5$

Answer: B

27. 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. 100 km

B. 24 km

C. 55 km

D. 50 km

Answer: C

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