

India's Number 1 Education App

PHYSICS

BOOKS - DISHA PHYSICS (HINGLISH)

COMMUNICATION SYSTEM



1. If μ and μ_2 are the refractive indices of the materials of core and cladding of an optical

fibre, then loss of light due to its leakage can

be minimised by having

B.
$$\mu_1 < \mu_2$$

C.
$$\mu_1=\mu_2$$

D. None of these

Answer:



2. Maximum usable frequency (MUF) in Fregion layer is x, when the critical frequency is 60 MHz and the angle of incidence is 70° , then x is

A. 150 MHz

B. 170 MHz

C. 175 MHz

D. 190 MHz

Answer:





3. Laser light is considered to be coherent because it consists of

A. many wavelengths

B. uncoordinated wave of a particular

wavelength

C. coordinated wave of many wavelengths

D. coordinated waves of a particular

wavelength



4. A laser beam is used for carrying our surgery because it

A. is highly monochromatic

B. is highly coherent

C. is highly directional

D. can be sharply focussed



5. Laser beams are used to measure long distances because

A. They are monochromatic

B. they are highly polarised

C. they are coherent

D. they have high degree of parallelism

Answer: D



6. An oscillator is producing FM waves of requency 2kHz with a variation of 10kHz. What is modulating index?

A. 0.2

B. 5

C. 0.67

D. 1.5



7. If f_0 and f_f represent the carrier wave frequencies for amplitude and frequency modulations respectively, then

A.
$$f_a > f_f$$

- B. $f_a < f_f$
- $\mathsf{C}.\,f_a=f_f$
- D. $f_a \leq f_f$



- 8. An antenna is a device
 - A. that concerts electromagnetic energy

into radio frequency signal

B. that converts radio frequency signal into

electromagnetic energy

C. that converts guided electromagnetic

waves into free space electromegnetic

waves and vice-versa

D. None of these

Answer:

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9. While tuning in a certain broad cast station

with a receiver, we are actually

A. Varying the local oscillator frequency

B. varying the freqeuncy of the radio signal

to be picked up

C. tuning the antgenna

D. None of these

Answer:

10. In a communication system, noise is most likely to affect the signal

- A. at the transmitter
- B. in the channel or in the transmission

line

- C. in the information source
- D. at the receiver

Answer:



11. In an FM system a 7kHz signal modulates 108MHz carrier so that frequency deviation is 50kHz. The carrier swing is

A. 7.143

B. 8

C. 0.71

D. 350

Answer:

12. The phenomenon by which light travels in an optical fibres is

A. Reflection

B. refraction

C. total internal reflection

D. Transmission

Answer:

- 13. 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 wve varies

as aomplitude of carrier wave

D. The frequency of modulated wave varies

as frequency of modulating wave



14. 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:

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15. For sky wave propagation of a 10MHz signal, what should be the minimum electron density in ionosphere?

A. ~
$$1.2 imes 10^{12}m^{-3}$$

B. ~
$$10^6 m^{-3}$$

C. ~
$$10^{14} M^{-3}$$

D. ~
$$10^{22}m^{-3}$$



16. What should be the maximum acceptance angle at the aircore interface of an optical

fibre if 1 n and 2 n are the refractive indices of

the core and the cladding, respectively

A.
$$\sin^{-1}(n_2 \, / \, n_1)$$

B.
$$\sin^{-1}\sqrt{n_1^2 - n_2^2}$$

C. $\left[\tan^{-1}\left(\frac{n_2}{n_1}\right)\right]$
D. $\left[\tan^{-1}\left(\frac{n_1}{n_2}\right)\right]$

Answer:

17. In which of the following remote sensing

technique is not used?

A. Forest density

B. pollution

C. wetland mapping

D. Medical treatment

Answer:

18. What type of modulation is employed in

india for radio transmission

A. A mixture of both frequency and pulse

modulation

B. Pulse modulation

C. frequency modulation

D. Amplitude modulation

Answer:

19. Which of the following are the characteristics of Laser beams? (1) They are monochromatic (2) They are coherent (3) They have high degree of parallelism (4) They are not monochromatic

A. They are monochromatic

B. they are coherentthey have high degree

of parallelism

C. they are not monochromatic

D. 1 and 3 are correct



20. The electron density of a layer of ionosphere at a height 150 km from the earth's surface is 9 × 109 per m3. For the sky transmission from this layer up to a range of 250 km,

The critical frequency of the layer is

A. 2 Hz

B. 2.7 Hz

C. 2.78 kHz

D. 2.7 MHz

Answer:

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21. The electron density of a layer of ionosphere at a height 150 km from the earth's surface is 9×10^9 per m^3 . For the sky transmission from this layer up to a range of

250 km,

Maximum usable frequency is

A. 3.17 Hz

B. $3.17 imes 10^{6}Hz$

C. $3.17 imes 10^3 Hz$

D. $3.17 imes 10^{10} Hz$

Answer:

22. The electron density of a layer of ionosphere at a height 150 km from the earth's surface is 9 × 109 per m3. For the sky transmission from this layer up to a range of 250 km,

Angle of incidence of this layer is

A. 0°

B.
$$\sec^{-1}(1.51)$$

 $C. \sec^{-1}(1.17)$



23. Statement-I : Television signals are received through sky-wave propagation
Statement-II : The ionosphere reflects electromagnetic waves of frequencies greater than a certain critical frequency.

A. Statement-1 is true, Statement-2 is true,

statement-2 is a correct explanantion for

statement-1

B. Statement-1 is True, Statement-2 is True,

Statement-2 is NOT a correct explanation

for Statement-1.

C. Statement -1 is False, Statement-2 is

True.

D. Statement -1 is True, Statement-2 is

False.

Answer:

24. Assertion: The electromagnetic waves of shorter wavelength can travel longer distances on earth's surface thane those of longer of longer wavelengths. Reason: Shorter the wavelength, the larger is the velocity of wave propagation. Also, shorter the wavelength, shorter is the velocity of wave propagation.

A. Statement-1 is true, Statement-2 is true, statement-2 is a correct explanantion for statement-1

B. Statement-1 is True, Statement-2 is True,

Statement-2 is NOT a correct explanation

for Statement-1.

C. Statement -1 is False, Statement-2 is

True.

D. Statement -1 is True, Statement-2 is

False.

Answer:

25. Assertion: A dish antenna is highly directional.

Reasion: This is because a dipole antenna omnidirectional.

A. Statement-1 is true, Statement-2 is true,

statement-2 is a correct explanantion for

statement-1

B. Statement-1 is True, Statement-2 is True,

Statement-2 is NOT a correct explanation

for Statement-1.

C. Statement -1 is False, Statement-2 is

True.

D. Statement -1 is True, Statement-2 is

False.

Answer: