PHYSICS

RESONANCE ENGLISH

COMMUNICATION SYSTEM

Exercise

1. 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. only (i) and (ii)

B. Only (ii) and (iii)

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

D. all of the above (i) to (iv)

Answer: D

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2. The process of changing some characteristic of a carrier wave in accordance with the intensity of signal to be transmitted is called

A. amplification

B. rectification

C. modulation

D. none of these

Answer: C

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3. It a carrier wave of 1000 kHz is used to carry the signal, the length of transmitting antenna will be equal to

A. 3m

B. 30 m

C. 300m

D. 3000m

Answer: C

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4. What is total modulation index when a carrier wave is modulated by a number of sine waves having modulation index $\mu_1, \mu_2, \mu_3, \ldots\ldots \mu_n$?

A. $\mu_A = \mu_1 + \mu_2 + \mu_3 + \ldots . + \mu_n$

B. $\mu_A = (\mu_1 + \mu_2 + \mu_3 + \ldots . + \mu_n)/n$

C. $\mu_A = \sqrt{\mu_1^2 + \mu_2^2 + \mu_3^2 \ldots . + \mu_n^2}$

D. $\mu_A = \left(\mu_1^2 + \mu_2^2 + \mu_3^2 + \ldots \mu_n^2\right)^2$

Answer: C

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5. Modulation factor determines-

A. only the strength of the transmitted signal

B. only the quality of the transimitted signal

C. both the strength and quality of the signal

D. none of these

Answer: C

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6. Degree of modulation-

A. can take any value

B. should be less than 100%

C. should exceeds 100%

D. none of these

Answer: B

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7. if the maximum and minimum voltage of AM wave are $V_{\max}$ and $V_{\min}$, respectively then modulation factor

A. $\mu = \dfrac{V_{\max}}{V_{\max} + V_{\min}}$

B. $\mu = \dfrac{V_{\min}}{V_{\max} + V_{\min}}$

C. $\mu = \dfrac{V_{\max} + V_{\min}}{V_{\max} - V_{\min}}$

D. $\mu = \dfrac{V_{\max} - V_{\min}}{V_{\max} + V_{\min}}$

Answer: D

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8. The AM wave contans three frequencies viz:

A. $\frac{f_c}{2}, \frac{f_c + f_s}{2}, \frac{f_c - f_s}{2}$

B. $2f_c, 2(f_c + f_s), 2(f_c - f_s)$

C. $f_c, (f_c + f_s), (f_c - f_s)$

D. f_c, f_c, f_c

Answer: C

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9. In AM wave, carrier power is given by-

A. $P_c = \frac{2E_0^2}{R}$

B. $P_c = \frac{E_c^2}{R}$

C. $P_c = \frac{E_0^2}{2R}$

D. $P_c = \frac{E_c^2}{\sqrt{2}R}$

Answer: C

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10. Fraction of total power carried by side bands is given by-

A. $\frac{P_s}{P_T} = m^2$

B. $\frac{P_s}{P_T} = \frac{1}{m^2}$

C. $\frac{P_s}{P_T} = \frac{2+m^2}{m^2}$

D. $\frac{P_s}{P_T} = \frac{m^2}{2+m^2}$

Answer: D

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11. For a carrier frequency of 100 kHz a modulating frequency of 5 kHz. What is the width of AM transmission :-

A. 5 k Hz

B. 10 kHz

C. 20 kHz

D. 200 kHz

Answer: B

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12. Intelset satellite works as a -

A. transmitter

B. repeater

C. absorber

D. none of these

Answer: B

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13. The frequency band used for radar relay systems and television-

A. UHF

B. VLF

C. VHF

D. EHF

Answer: A

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14. Fading applies to:

A. troposcatter propagation

B. ionospheric propagation

C. Faraday rotation

D. atmospheric storms

Answer: A

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15. When microwave signals follow the curvature of earth, this is known as:

A. window

B. the Faraday effect

C. ionospheric reflection

D. ducting

Answer: D

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16. the transmission media can be

A. guided only

B. unguided only

C. both (1) and (2)

D. neither (1) nor (2)

Answer: C

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17. In A.M., total modulation index should not exceed one or else:

A. the system will fall

B. distortion will result

C. amplifier will be dammaged

D. none of the above

Answer: B

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18. An 'antenna' is

A. inductive

B. capacitative

C. resistive above its resonance frequency

D. none of the above

Answer: A

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19. The radio waves of frequency 30 MHz to 300 MHz belong to

A. high frequency band

B. vary high frequency band

C. Ultra high frequency band

D. super high frequency band

Answer: C

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20. In an amplitude modulated wave for audio frequency of 500 cycles/second, the appropriate carrier frequency will be

A. 50 cycles/sec

B. 100 cycles/sec

C. 500 cycles/sec

D. 50000 cycle/sec

Answer: D

21. A TV. Tower has a height 150 m.What is the population density around the TV. Tower if the total population covered is 50 lakh? (radius of earth $= 6.4 \times 10^6 m$)

A. $82.6km^{-2}$

B. $800.6km^{-2}$

C. $828.6km^{-2}$

D. $876.6km^{-2}$

Answer: C

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22. Range of frequencies alotted for commerical FM radio broad cast is

A. 88 to 108 MHz

B. 88 to 108 KHz

C. 8 to 88 MHz

D. 88 to 108 GHz

Answer: A

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23. The maximum distance upto which TV transmission from a TV tower of height h can be received is proportional to

A. $h^{1/2}$

B. h

C. $h^{3/2}$

D. h^2

Answer: A

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24. An oscillator is producing FM waves of frequency 2 kHz with a variatio of 10 kHz. What is the modulating index

A. 0.2

B. 5

C. 0.67

D. 1.5

Answer: B

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25. Consider telecommunication through optical fibers. Which of the following statements is not true ?

A. optical fiberes may have homogenous core with a suitable cladding

B. optical fibres can be of graded refractive index.

C. optical fibres are subjected to electromagnetic interference from outside

D. optical fibres have exteremly low transimmion loss

Answer: C

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26. Television signals on earth cannot be received at distances greater than 100 km from the transmission station. The reason behind this is that

A. The receiver antenna unable to detect the signal at a distance greater than 100 km

B. the TV programme consists of both audio and video signals

C. The TV signals are less powerful than radio signals.

D. The surface of earth is curved like a sphere

Answer: D

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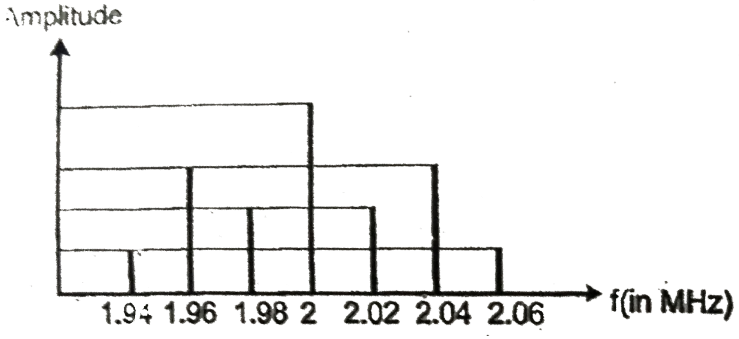
27. An amplitude is frequency graph of a frequency medulatal wave is given as shown in the figure.



Frequency index of this wave be

A. 0.02

B. 0.04

C. 0.06

D. 0.08

Answer: C

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28. Which of the following statements is incorrect

A. The space waves are the radiowaves of frequency between 30 MHz to 300 MHz

B. The space waves can travel through atmosphere from transmitter antenna to receiver antenna either directly or after reflection from ground in the earth's troposphere region.

C. the space wave propagation is not a sight propagation

D. The space wave communication utilized in television communication, radar

communication and microwave communication

Answer: C

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29. Which of the following statements is false?

A. Geostationary satellite can be used for T.V communication

B. The height of geostationary satellite is about 24000 km from the surface of earth

C. The geostationary satellite is at a fixed location for a place on earth

D. the period of revolution of geostationary satellite around the earth is 24 hours

Answer: B

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30. Optical fibers are the best medium of transmission over copper wires, because

A. The loss of data in optical fibers is very-very high

B. optical fiber is cheap and easy to construct

C. The optical fibers are made of glass and they are automatically isolated from the current

D. The optical fibers can take few number of telephonic message at a time.

Answer: C

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