

Exam on chapter (1)
MR. Ahmed Ramadan

Name :

Center:

Shade the correct answer from (a , b , c , d)

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| 1. | <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
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| 19. | <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |
| 20. | <input type="radio"/> a | <input type="radio"/> b | <input type="radio"/> c | <input type="radio"/> d |

1) Choose the correct answer:-

1. The ratio between the time of the complete oscillation to half time of amplitude is _____

- a) $\frac{4}{1}$ b) $\frac{2}{1}$ c) $\frac{1}{8}$ d) $\frac{1}{4}$

2. If the distance between the compression and the successive rarefaction in a certain wave is 15 cm so we can say _____

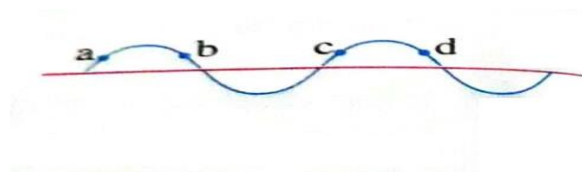
- A) The wavelength of sound wave is 15 cm B) The wavelength of water wave is 15 cm
C) The wavelength of sound wave is 30 cm D) The wavelength of water wave is 30 cm

3. The x-rays is considered as _____

- a) Transverse waves b) longitudinal waves c) mechanical waves

4. In the opposite wave which points the time taken between them is called periodic time?

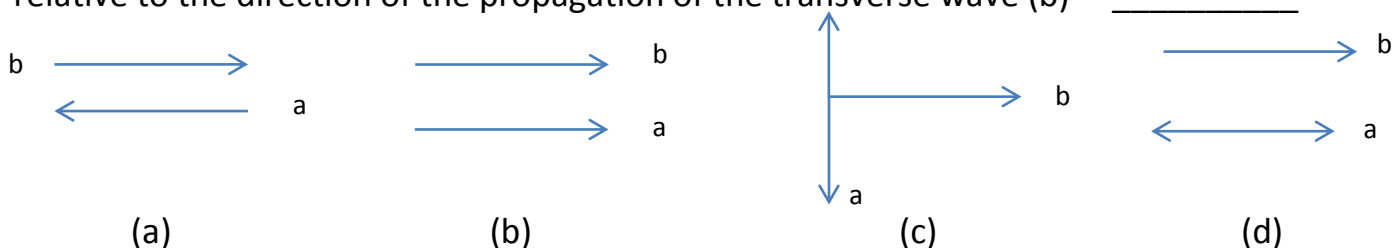
- a) (a,b,c) b) (b,c)
c) (b,d) d) (a,b)



5. If the frequency of an oscillatory motion is doubled, the periodic time is _____

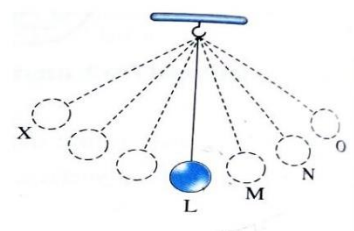
- a) doubled b) halved c) quartered d) not changed

6. The figure that represents the direction of the vibration of the particles of medium (a) relative to the direction of the propagation of the transverse wave (b) _____



7. The opposite figure shows the motion of a simple pendulum from X to O, if the distance LM , MN , and NO are equal then the velocity of these distance are _____

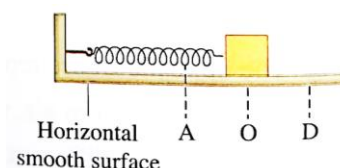
- a) LM = MN = NO b) LM > MN > NO
c) LM < MN < NO d) LM = MO



8. If the distance between the 2nd trough and the 5th crest is 10 cm while this wave makes 90 complete waves in a minute so the velocity of this wave is _____

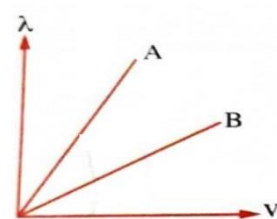
- a) 6 m/s b) 5 m/s c) 0.05 m/s d) 0.06 m/s

9. The opposite figure represents a load attached to one of the ends of a spring and moves in a simple harmonic motion between two points A, D. Which of the following quantities becomes minimum when the object becomes at point O?



- a) Speed of the object b) Elastic potential energy of the object
c) Kinetic energy of the object d) Mechanical energy of the object

10. The opposite graph shows the relation between the wavelength and the speed for two different waves (B and A) which propagate in different media, so _____



- a) $T_A > T_B$ b) $T_A < T_B$ c) $U_A > U_B$ d) $U_A = U_B$

11. If the wavelength of a wave decreased to half its value when it transferred between 2 different mediums so _____

- A) Its velocity increases to double B) Its velocity decreases to half
C) Its frequency increases to double D) Its frequency decreases to half

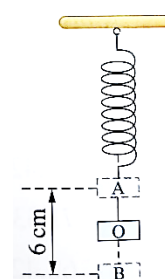
12. The waves inside water considered as _____

- a) Transverse waves b) Longitudinal waves c) Electromagnetic waves

13. If the distance between two successive points have the same phase in transverse wave is 2m and the number of waves 1.25, then the total distance covered by these waves is _____

- a) 1.6 m b) 0.625 m c) 2.5 m d) 2 m

14. The opposite figure shows a load that is attached to a vibrating spring, so the total distance that is covered by the load during a periodic time equals _____



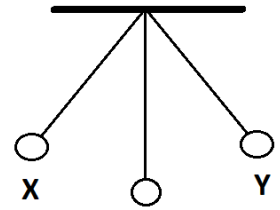
- a) 3 cm b) 6 cm c) 9 cm d) 12 cm

15. The factor that affecting on the speed of wave _____

- a) The medium b) The wavelength c) The frequency
d) Both wavelength and frequency

16. If the simple pendulum in the shown figure cuts a distance 10 cm from point x to y so the distance covered by this pendulum to make $\frac{3}{4}$ wave is _____

- a) 5 cm b) 10 cm
c) 15 cm d) 20 cm



17. The ratio between the velocity of microwaves to the velocity of gamma ray in air is _____

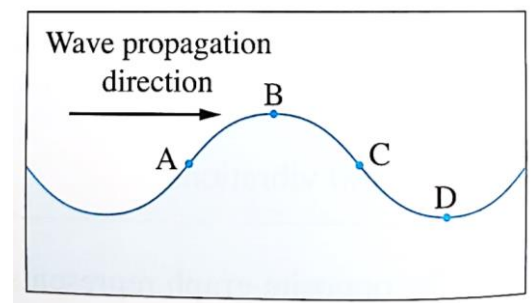
- a) Less than 1 b) Greater than 1 c) Equal to 1 d) no correct answer

18. The ratio between the wavelengths of the two waves that propagate in the same medium, if the periodic time of the first wave is half that of the second wave _____

- a. $\frac{1}{2}$ b. $\frac{2}{1}$ c. $\frac{1}{1}$ d. $\frac{4}{1}$

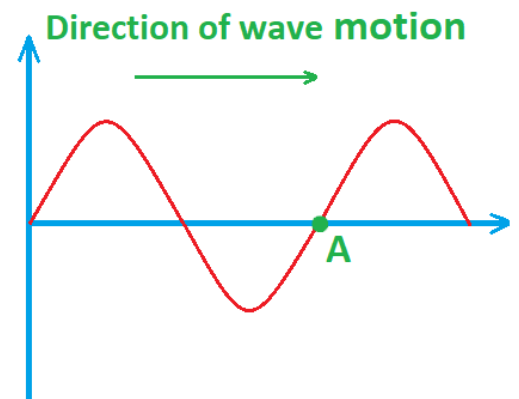
19. The opposite figure shows a vertical section of a wave propagation through water from left to right, so at which two points the instantaneous vertical velocities of water particles are maximum?

- a. A , D b. B , C
c. A , C d. C , D



20. In the opposite figure, point A represents the position of one of the medium molecules in which a transverse wave is propagating at a certain moment. If this point has become a trough after 1.5 s from this moment, so the periodic time of this wave equals _____

- a. 2 s b. 4 s
c. 6 s d. 8 s



2) Essay Question:-

1. A load got suspended by a spring coil, so the length of the coil became 7 cm, and when the load gets pulled vertically downwards by a certain force, the length of the coil becomes 10 cm. If the load is left to vibrate, **calculate** the distance covered by the load through five complete vibrations.

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2. The opposite graph shows the relation between the displacement (d) and the time (t) for two waves A and B, **find** the speed of propagation of each wave in the medium.

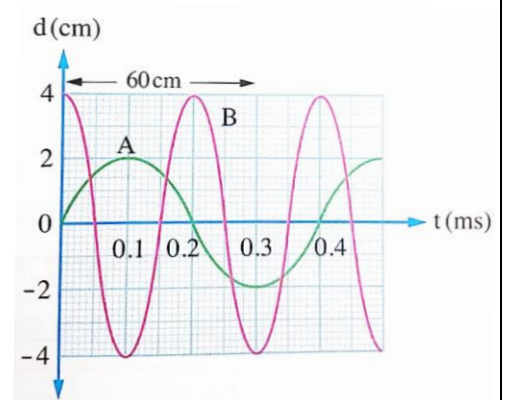
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3. A sound wave that propagates in air has produced vibrations to the air particles where the opposite graph represents the relation between the displacement (d) of one of the air particles and time (t). **Draw** the relation between the displacement and the time with the same drawing scale for the vibration of one of the air particles that transmit a sound wave of half the wavelength of the first wave and half the amplitude of the first wave.

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