Central Administration for Curriculum Development

Science development office

Physics

Second Secondary Grade

2026

Home Work

Week 5

Name: .....

Class: .....

School: .....

إعـــداد

عبد الله مصطفي - عمرو مالي

مراجعة

محمد عنتر

مكتب مستشار العلوم

عبدالله مصطفى - سعيد محمد

إشراف

د/ عزيزة رجب خليفة

مستشار العلـــــوم

إشراف عام

د/ هالـــــة عبـــد السلام

رئيس الإدارة المركزية للتعليم العام

Chapter 2| Wave motion

First: Multiple Choice Questions

1) A body of frequency 100 Hz produces a wave that propagates in air with a speed of 320 m/s. The wavelength of this wave is equal to ……

(A) 3.2 m

(B) 0.3125 m

(C) 32000 m

(D) 420 m

2) Two sound waves of frequencies 256 Hz and 512 Hz propagate in the same medium. The ratio of their speeds is ……

(A) 2 : 1

(B) 1 : 1

(C) 1 : 2

(D) 3 : 1

3) A sound wave is transmitted from air to iron. If the ratio between the speed of sound in air and its speed in iron is 3 : 44, and the wavelength of the sound wave in air is 57.6 cm, then the wavelength of the sound wave in iron is equal to ……

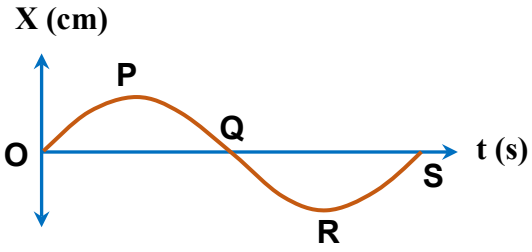
(A) 4.9 cm

(B) 172.8 cm

(C) 533.5 cm

(D) 844.8 cm

4) The given curve represents a wave of frequency 2.5 Hz. The time interval between O and R is …… seconds.



(A) 0.1

(B) 0.2

(C) 0.3

(D) 0.4

5) In a transverse wave, the direction of vibration of the particles of the medium relative to the direction of wave propagation is ……

(A) In the same direction

(B) Perpendicular to it

(C) Inclined to it

(D) Variable

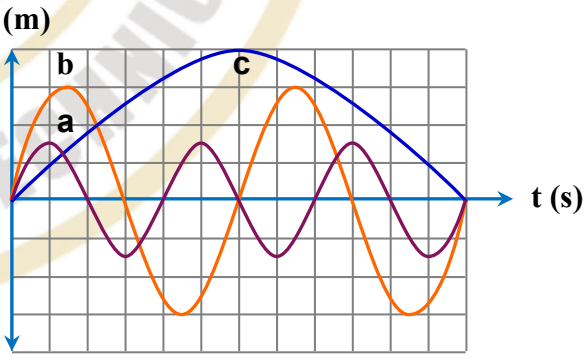
6) The opposite graph represents the relation between the displacement of a vibrating body (d) and time (t) for three vibrating sources (a, b, c). The source (c) has ……

(A) The smallest amplitude and the lowest frequency

(B) The greatest amplitude and the highest frequency

(C) The smallest amplitude and the highest frequency

(D) The greatest amplitude and the lowest frequency



7) From the relation: $\lambda = \frac{v}{0.04}$

If the distance between a crest and the next trough is 2 m, then the wave speed is .....

(A) 0.08 m/s

(B) 0.16 m/s

(C) 320 m/s

(D) 0.1 m/s

8) A sound source produces 60 vibrations in 1.5 s, and the resulting wave propagates in air with a speed of 340 m/s. The distance between the centers of two successive compressions and rarefactions is equal to .....

(A) 2.8 m

(B) 4.25 m

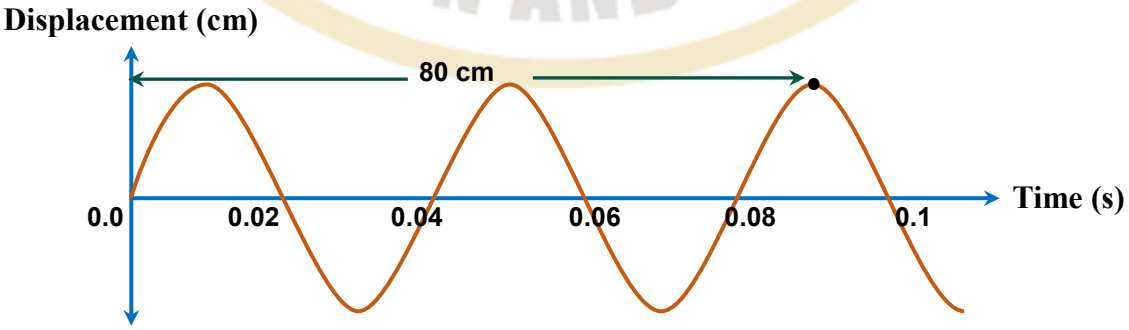
(C) 5.67 m

(D) 8.5 m

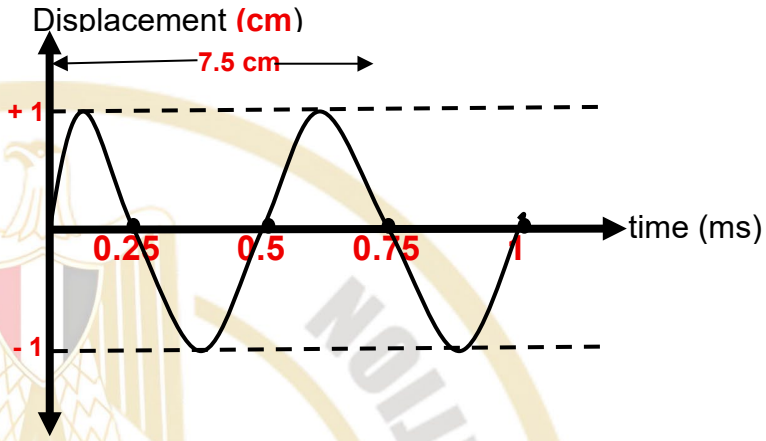
Second: Essay Questions

9) The opposite figure shows the relation between the displacement (in centimeters) and time (in seconds) of a wave. Calculate the value of each of the following:

(a) The wavelength (b) The speed of propagation of this wave



10) The opposite figure shows the relation between the displacement (in centimeters) and time (in ms) of a wave.



Find: a) Periodic time

……

b) Frequency

……

c) No. of crests in 2 sec.

……

d) Wavelength

……

e) Velocity

……

f) Amplitude

……

– The end –

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MINISTRY OF EDUCATION AND TECHNICAL EDUCATION

وزارة التربية والتعليم والتعليم الفني

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Group (A)

First: Multiple Choice Questions

١- If the time interval between the first crest and the tenth crest in a wave motion is 0.2 sec., then the frequency is .....

a) 55 Hz b) 50 Hz c) 45 Hz d) 40 Hz

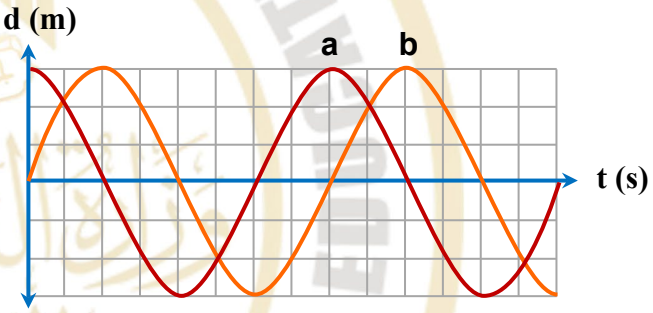
2- The opposite graph shows the relation between displacement (d) and time (t) for two vibrating bodies. The phase difference between the two vibration sources is equal to ..

(A) Zero

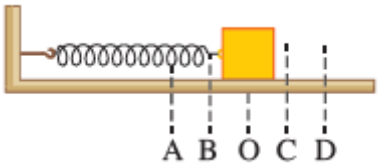
(B) 0.25 λ

(C) 0.5 λ

(D) λ



3) The adjacent figure represents an object attached to a spring oscillating between the two points A, D, so the lowest value of the potential energy of the object is at .....



a) Point A or point D
b) Point O only
c) Point B only
d) Point C only

Second: Essay Questions

4) Waves propagate on the surface of water with a speed of 5 m/s.

Calculate the number of waves present in a distance of 100 m, if their frequency is 0.4 Hz.

Group (B)

First: Multiple Choice Questions

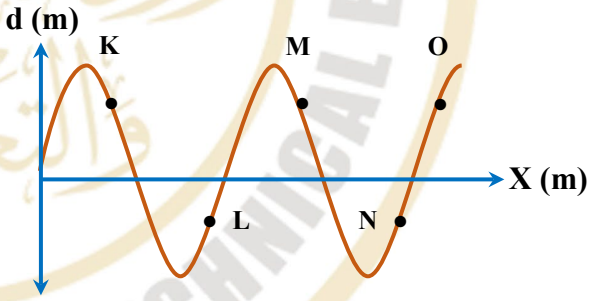
1) In the opposite figure, which of the following points is in the same phase as point M?

(A) O

(B) K

(C) L

(D) M



2) Two sound waves of frequencies 128 Hz and 320 Hz propagate in air with a speed of 320 m/s.

The difference between their wavelengths is equal to ……

(A) 1.3 m **(B) 1.4 m**

(C) 1.5 m **(D) 1.6 m**

3) When a rod vibrates four times per second, a wave crest travels a distance of ٤ cm in water. so the speed of propagation of the water waves is .....

(A) 16 cm/s

(B) 24 cm/s

(C) 32 cm/s

(D) 40 cm/s

Second: Essay Questions

4) Waves propagate on the surface of water with a speed of 10 m/s. Calculate the number of waves present in a distance of 200 m, if the periodic time of the wave is 0.05 s.

Group (C)

First: Multiple Choice Questions

1) If the ratio between the frequency of a man's voice and the frequency of a girl's voice is 3 : 4, then the ratio between the speed of the man's voice and the speed of the girl's voice in air is equal to .....

(A) 3 : 4

(B) 4 : 3

(C) 1 : 1

(D) 9 : 16

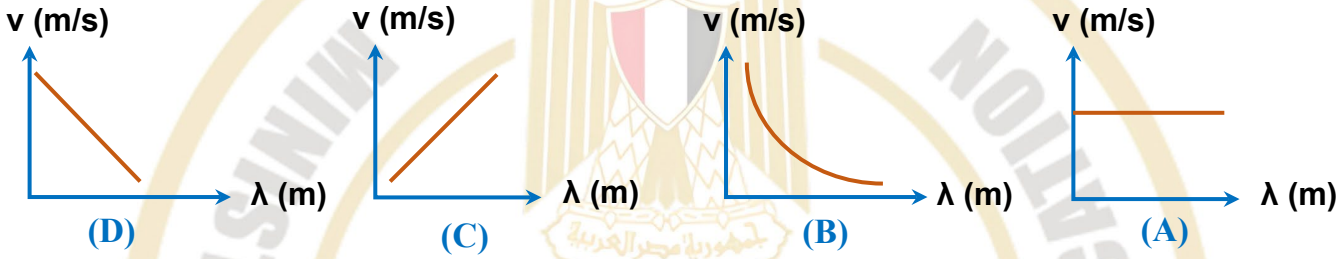
2) A stone is thrown in a pool, 40 waves are produced in 4 sec, and the diameter of the outer wave is 3.2 meter. so the speed of wave equals .....

a) 0.2 m/s b) 0.4 m/s

c) 0.6 m/s d) 0.8 m/s

.....

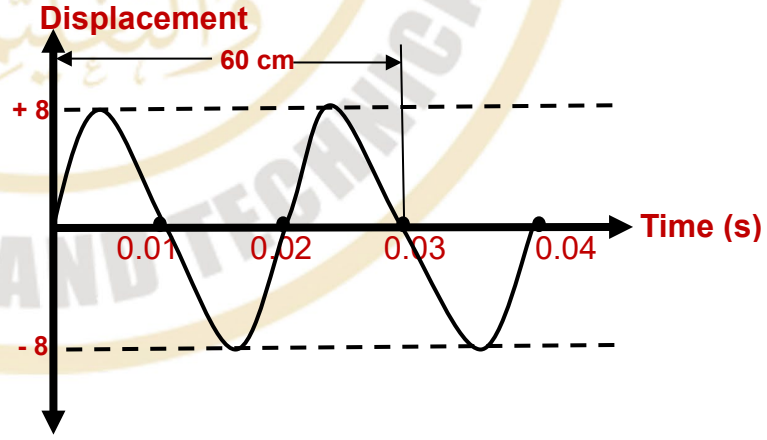
3) Which of the following graphs represents the relation between the wavelength and the wave propagation speed for a number of waves propagating in the same medium?



Second: Essay Questions

4) The opposite graph shows the relation between the displacement of a vibrating body d (cm), and time t (s). Calculate the following:

1. The amplitude of vibration
2. The frequency of vibration
3- Wavelength
4-Periodic time
5- Wave speed



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