Federal Board of Intermediate and Secondary Education,Islamabad.

FBISE

WE WORK FOR EXCELLENCE

MCQs (HSSC-1)

Time allowed: 25 minutes   Marks: 17

Note: Section-A is compulsory and comprises pages 1-6. All parts of this section are to be answered on the question paper itself. It should be completed in the first 25 minutes and handed over to the Centre Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q.1 Insert the correct option i.e. A/B/C/D in the empty box opposite each part. Each part carries one mark.

i.   Which of the following is NOT the unit of pressure?

   A. $kg\ m^{-1}s^{-2}$
   B. $kg\ m^{2}s^{-2}$
   C. Nm^{-2}
   D.   Pascal

ii.   When the velocity of a moving object is doubled, its

   A.   acceleration is doubled.
   B.   centripetal force is doubled.
   C.   kinetic energy is doubled.
   D.   momentum is doubled.

iii.   What never changes when two or more objects collide?

   A.   kinetic energy of each one.
   B.   momentum of each one.
   C.   total momentum of all the objects.
   D.   total kinetic energy of all the objects.

iv.   An object in equilibrium may NOT have

A.   velocity.
B.   acceleration.
C.   any forces acting on it.
D.   any torques acting on it.

v.   The mathematical form of first law of thermodynamics for
       an isothermal compression is

A. $Q = W$
B. $-Q = W$
C. $-Q = -W$
D. $Q = \Delta U + W$

vi.   A point mass moves along a circular arc of length ' ' and
       radius 'r' in time 't'. What is its angular velocity about
the   centre of the circle?

A.   /rt
B.   r/ t
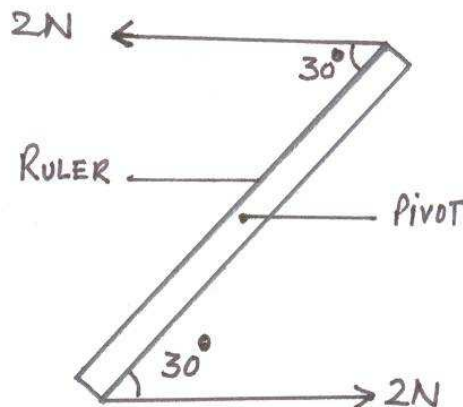C. $2\pi/$ t
D. $2\pi r/t$

vii.   The speed of sound at 0C° is 332ms^{-1}. What is the speed of
       sound at 10C°?

A.   336.1ms^{-1}
B.   338.1ms^{-1}
C.   392.1ms^{-1}
D.   340.0ms^{-1}

viii. A ruler of length 0.30m is pivoted at its centre. Equal and
       opposite forces each of magnitude 2N are applied to the ends
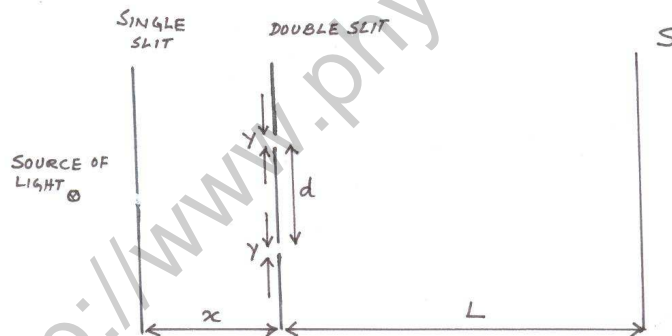   of the ruler, creating a couple.

What is the magnitude of the torque of the couple on the ruler
when it is in the position shown?

A.   0.15Nm
B.   0.23Nm
C.   0.30Nm
D.   0.60Nm

ix.   A body performing SHM has a displacement 'x' given by the
relation x = 30sin 50t, where 't' is the time in seconds. What
is the frequency of its oscillation?

A.   0.13Hz
B.   8.0Hz
C.   30Hz
D.   50Hz

x.   In the Young's double slit arrangement, shown, a pattern of
equally spaced parallel fringes appears on a screen placed at L.

Which quantity, if increased would cause the separation of the
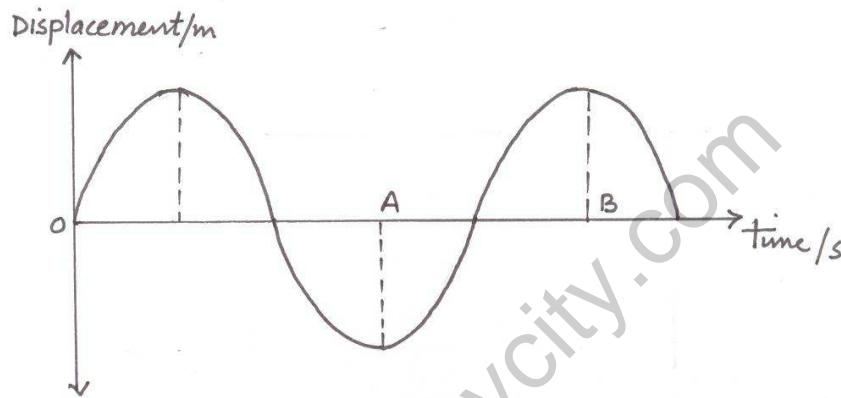fringes to increase?

A.   x
B.   y
C.   d
D.   L

xi.   Two sources of sound have frequencies f_1 and f_2 respectively,
f_1 being slightly greater than f_2, what is the period of the beats
heard when the sources operate simultaneously?

A. (f_1-f_2)

3

B. $\dfrac{1}{f_1 - f_2}$

C. $\dfrac{2}{f_1 - f_2}$

D. $\dfrac{f_1 - f_2}{f_1 f_2}$

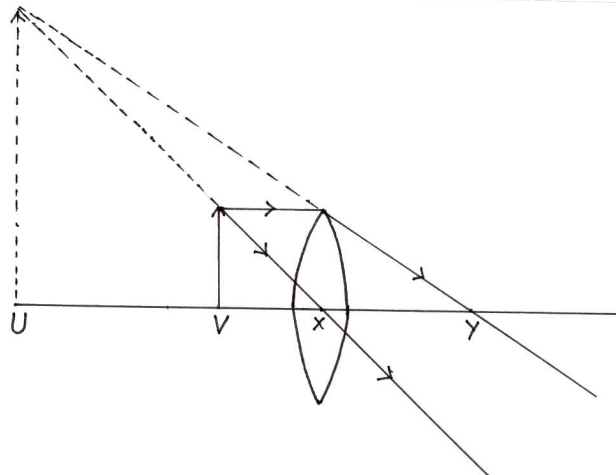xii. In the diagram below, the displacement of an oscillating particle is plotted against time

What does the length AB on the time axis represent?

A. half the wavelength.
B. twice the period.
C. half the period.
D. twice the frequency.

Turn Over

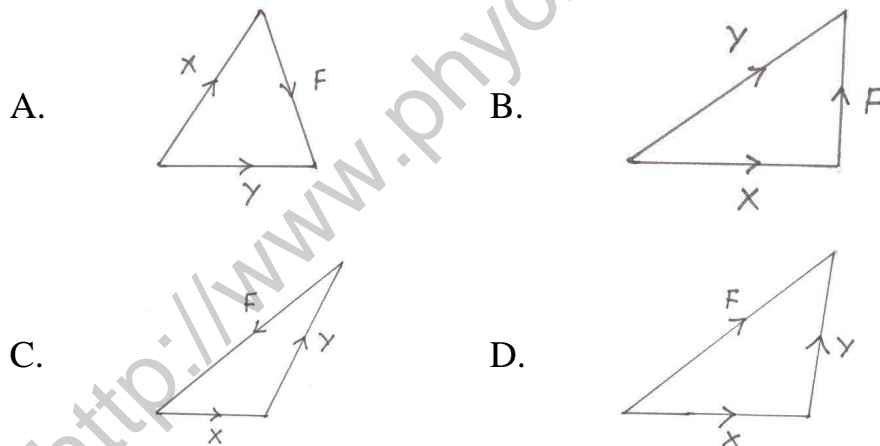xiii. The diagram shows the action of a magnifying glass

Which point is the principal focus of the magnifying glass?

A.   U
B.   V
C.   X
D.   Y

xiv.   The minute hand of a large clock is 2.0m long. What is its
       mean angular speed?

A. 1.0×10^{-3} rads^{-1}
B. 1.7×10^{-3} rads^{-1}
C. 3.0×10^{-3} rads^{-1}
D. 3.5×10^{-3} rads^{-1}

xv.   An object is acted upon by two forces X and Y. A frictional
      force F holds the object in equilibrium. Which vector triangle
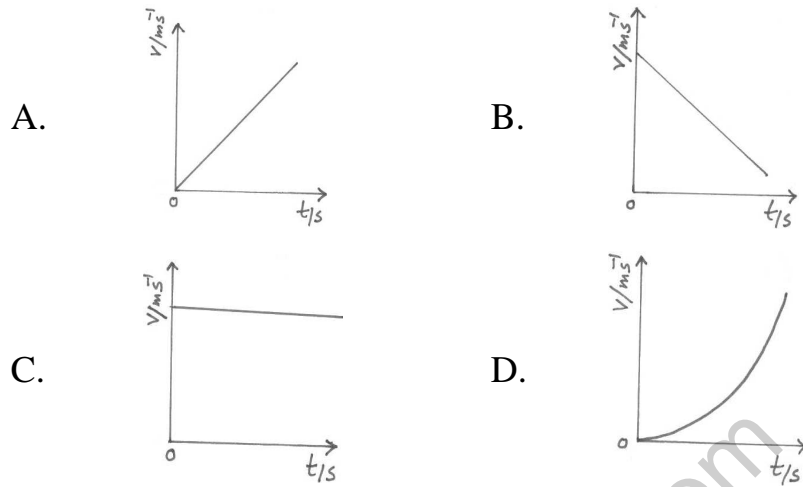   could represent the relationship between these forces?

A.

B.

C.

D.

xvi.   A sphere has a surface area of 100 sq meters. A second sphere
       has twice the diameter of the first. Then the ratio
       $$\frac{\text{surface area of second sphere}}{\text{surface area of first sphere}} \text{ is}$$

A.   1/4
B.   1/2
C.   2
D.   4

xvii. A car is moving on a motor way. Point out the correct velocity-time graph which shows zero acceleration of the car.

A.

B.

C.

D.

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