



PHYSICS

BOOKS - SELINA PHYSICS (ENGLISH)

SAMPLE PAPER -4

Questions

1. Wavelength range of yellow light is

A. $4000 \text{ \AA} - 4460 \text{ \AA}$

B. 4640 Å-5000Å

C. 5780 Å -5920 Å

D. 6200Å-8000Å

Answer: C



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2. Choose the incorrect statement

A. Dispersion of white light occurs at the first surface of prism

B. Deviation of light occurs at both the surface of prism

C. The prism produce colours

D. The prism splits the various colours present in the light incident on it.

Answer: C



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3. If frequency of a yellow light is $6 \times 10^{10} \text{ Hz}$.

Then Wavelength of light in m

A. $6 \times 10^{-10} \text{ m}$

B. $2 \times 10^{-2} \text{ m}$

C. $0.5 \times 10^{-2} \text{ m}$

D. 0.5 m

Answer: C



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4. Chosee the correct statement

A. EM waves requires a material medium
for propagation

B. EM waves are transverse wave

C. EM waves reflects by Electric & Magnetic
field

D. The velocity of EM waves not changes
when medium changes

Answer: B



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5. Choose the correct statement with respect to lateral displacement

A. It occurs in case of a rectangular glass slab

B. It occurs when ray passes through two optical media

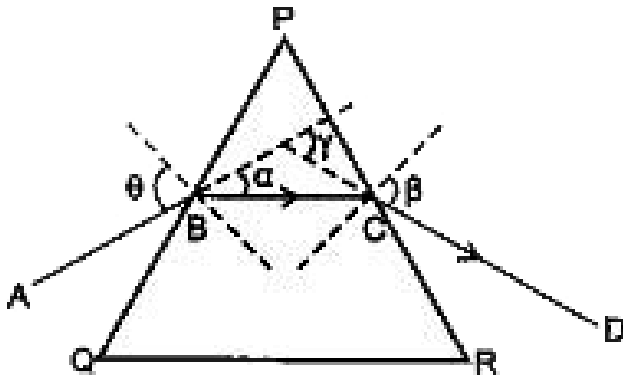
C. It is directly proportional to thickness of glass slab

D. Both 1 and 3

Answer: D

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6. Use this figure to answer the following question:



Emergent ray is

A. AB

B. BC

C. CD

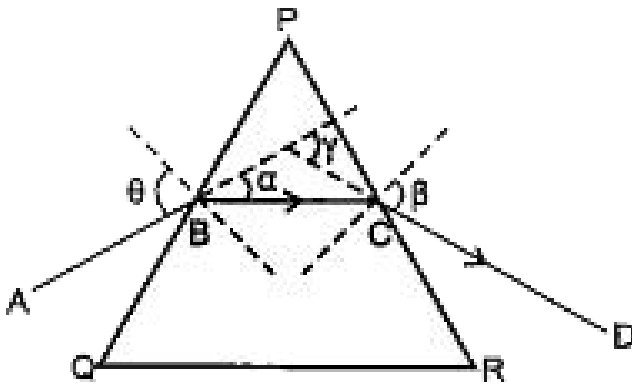
D. none of these

Answer: C



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7. Use this figure to answer the following question:



Angle of prism will be

A. θ

B. α

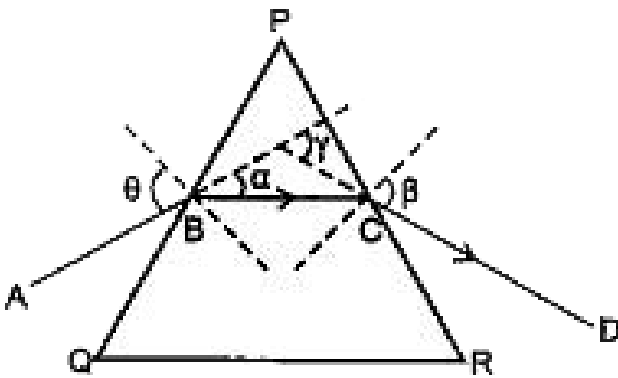
C. γ

D. none of these

Answer: D



8. Use this figure to answer the following question:



Angle of deviation will be

A. α

B. β

C. γ

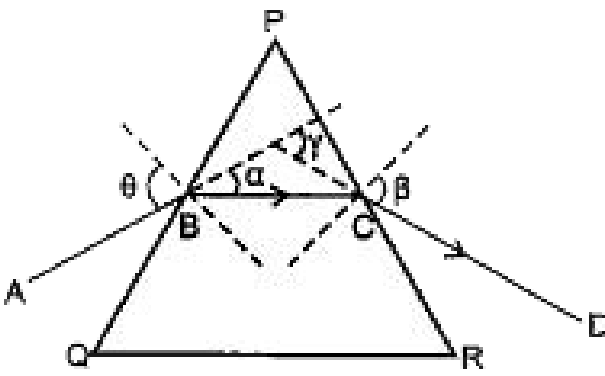
D. θ

Answer: C



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9. Use this figure to answer the following question:



Angle of deviation does not depend on

A. θ

B. P

C. μ

D. Q

Answer: D



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10. Choose incorrect statement about concave lens

- A. The image is always virtual
- B. The image is always real
- C. The image is always diminished
- D. The image is always erect

Answer: B



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11. Choose the correct formula for magnifying power of lens

A. $m = 1 + \frac{D}{f}$

B. $m = \frac{D}{f}$

C. $m = 1 + \frac{f}{D}$

D. $m = \frac{D}{f} + 2$

Answer: A



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12. The correct relation between the speed of longitudinal waves (v), density of medium (ρ) and pressure (p) is

A. $v = \sqrt{\frac{p}{\rho}}$

B. $v = \sqrt{\frac{\rho}{p}}$

C. $v = \sqrt{\frac{\gamma p}{\rho}}$

D. $v = \sqrt{\frac{\gamma \rho}{p}}$

Answer: C



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13. Choose the incorrect statement

A. An echo is heard only if the distance of person producing sound is long enough to allow the reflected sound to reach a person at least 0.1 sec after original sound is heard

B. time taken to hear echo is $\frac{2d}{v}$

C. To hear the echo distinctly the reflecting surface in air should be at minimum 17m

distance.

D. The size of reflector should be small enough as compared to wavelength of the sound.

Answer: D



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14. Choose incorrect statement

A. Sound wave require medium to propagate

B. Range of audibility is 20 Hz to 20,000 Hz

C. the sound of frequency greater than audibility range is called ultrasonic

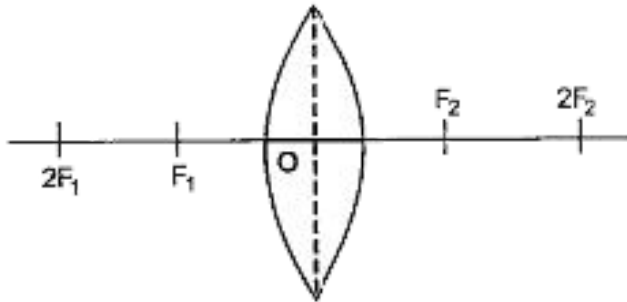
D. Infrasonic waves are audible for human ears

Answer: D



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15. Answer the following for convex lens using the diagram given:



If the position of object is beyond $2F_1$, the position of image will be:

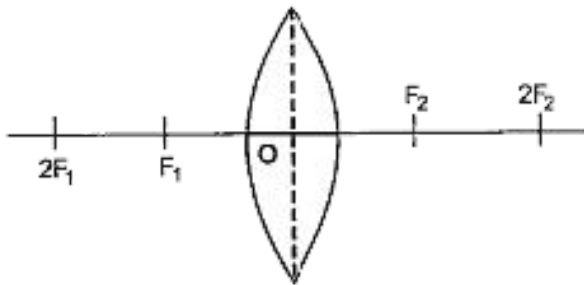
- A. at F_2
- B. between F_2 & $2F_2$
- C. at $2F_2$
- D. beyond $2F_2$

Answer: B



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16. Answer the following for convex lens using the diagram given:



If the position of object is at F_y , the position of image will be

A. Beyond $2F_2$

B. at $2F_2$

C. at infinity

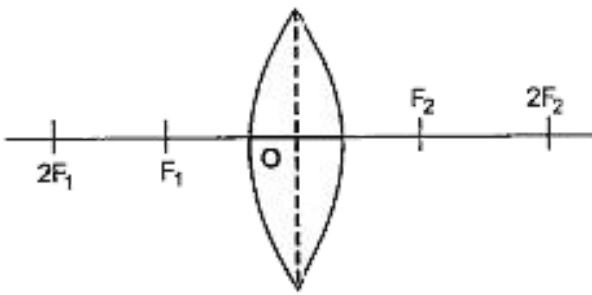
D. on the same side, behind the object

Answer: C



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17. Answer the following for convex lens using the diagram given:

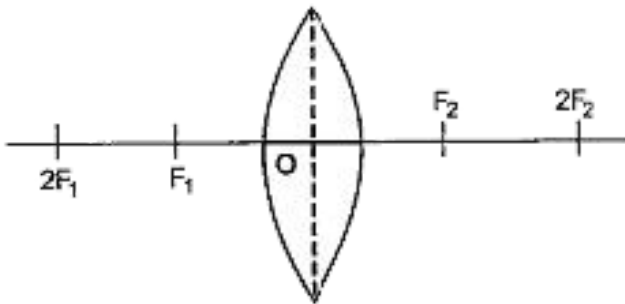


The image formed will be on the same side, behind the object if the object is at:

- A. At Infinity
- B. Between lens and F_1
- C. Between F_1 & $2F_1$
- D. at $2F_1$

Answer: B

18. Answer the following for convex lens using the diagram given:



If the object is at F_1 the size of image will be

- A. highly magnified
- B. highly diminished
- C. magnified

D. diminished

Answer: A



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19. In block and tackle system the mechanical advantage is:

A. number of pulley

B. One less than number of pulley

C. (Total number of pulley)

D. load /effort

Answer: D



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20. Choose incorrect statement

A. If effort arm = load arm, $M.A=1$

B. If effort $>$ load arm , $M.A > 1$

C. If effort arm $<$ load arm, $M.A < 1$

D. If effort arm =load arm , $M.A \leq 1$

Answer: D



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21. Work done by effort is

A. Effort \times load

B. load \times distance moved by effort

C. Effort \times distance moved by effort

D. none of these

Answer: C



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22. If the work done by a heart is 2 J per beat .The power of the heart if it beat 70 times in 1 minute (approx)

A. 2 J/sec

B. 4 J/sec

C. 5 J/sec

D. 6 J/sec

Answer: A



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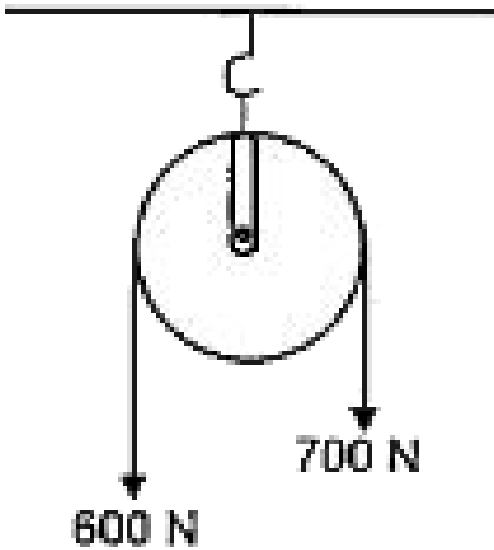
23. The relationship to evaluate the efficiency is

- A. power input/power output
- B. power input \times power output
- C. power output/power input
- D. power output \times power input

Answer: C



24. For the figure given answer the following:



A boy lift a load of 600N through a height of 10m in 10 sec. The effort applied by boy on other end is 700N.

Velocity ratio of the pulley

A. 0

B. 1

C. 2

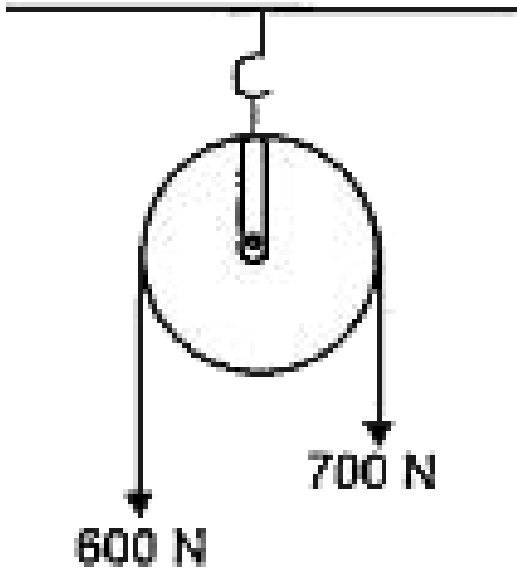
D. 3

Answer: A



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25. For the figure given answer the following:



A boy lift a load of 600N through a height of 10m in 10 sec. The effort applied by boy on other end is 700N.

Efficiency of pulley

A. 70 %

B. 76 %

C. 80 %

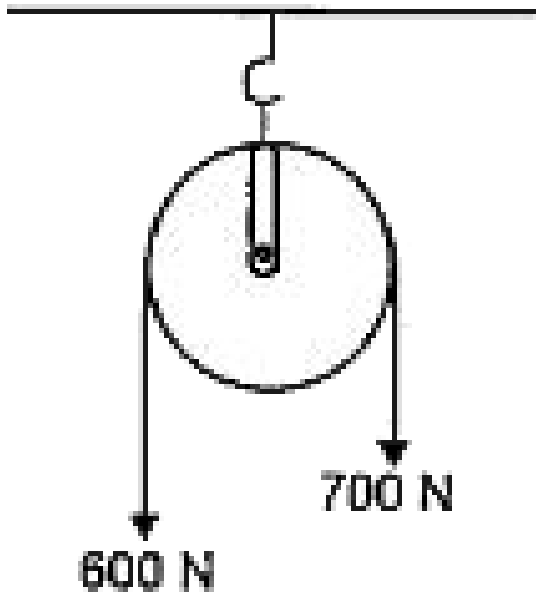
D. 86 %

Answer: D



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26. For the figure given answer the following:



A boy lift a load of 600N through a height of 10m in 10 sec. The effort applied by boy on other end is 700N.

Energy gained by load in a height of 10 min 10 sec.

A. 5000 J

B. 6000 J

C. 7000 J

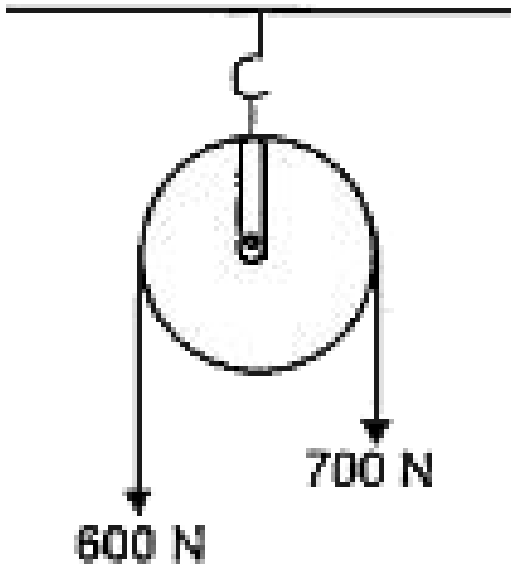
D. 8000 J

Answer: B



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27. For the figure given answer the following:



A boy lift a load of 600N through a height of 10m in 10 sec. The effort applied by boy on other end is 700N.

Power developed by boy in raising load:

A. 600 W

B. 700 W

C. 800 W

D. 900 W

Answer: B



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28. In linear motion the acceleration is

A. Positive

B. Negative

C. Zero

D. Constant

Answer: C



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29. The force which is not a real force

A. Force of tension

B. Centripetal force

C. Centrifugal force

D. Gravitational force

Answer: C



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30. An oscillating, simple pendulum of mass 100 g maximum height of 10 cm from rest, at its extreme one side. Answer the following.

Total energy of pendulum:

A. 0.1 J

B. 0.01 J

C. 0.00 1 J

D. 1 J

Answer: A



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31. An oscillating, simple pendulum of mass 100 g maximum height of 10 cm from rest, at its extreme one side. Answer the following.

Velocity of bob at mean position

A. 2 m /sec

B. 1 m/sec

C. 1.414 m/sec

D. none of these

Answer: C



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32. In uniform circular motion the velocity and speed are respectively:

A. Constant, variable

B. Variable, constant

C. Zero, variable

D. Undefined

Answer: B



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33. A ball of mass 20 kg is thrown in upward direction. It reach, till the height 20 m from the ground and comes back to the earth, if the

value of $g = 10 \frac{m}{sec^2}$, answer the following question.

Kinetic energy when at the maximum height

A. mgh

B. $\frac{1}{2}mv^2$

C. 0

D. none

Answer: C



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34. A ball of mass 20 kg is thrown in upward direction. It reaches, till the height 20 m from the ground and comes back to the earth, if the value of $g = 10 \frac{m}{sec^2}$, answer the following question.

Kinetic energy at height 10 m

- A. 500 J
- B. 1000 J
- C. 2000 J
- D. 3000 J

Answer: C



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35. A ball of mass 20 kg is thrown in upward direction. It reach, till the height 20 m from the ground and comes back to the earth, if the value of $g = 10 \frac{m}{sec^2}$, answer the following question.

Potential energy at maximum height

A. 1000 J

B. 2000 J

C. 3000 J

D. 4000 J

Answer: D



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36. A ball of mass 20 kg is thrown in upward direction. It reach, till the height 20 m from the ground and comes back to the earth, if the value of $g = 10 \frac{m}{sec^2}$, answer the following

question.

Potential energy of ground

A. 4000 J

B. 400 J

C. 0

D. none

Answer: C



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