

STUDENTS' ZONE – WORKSHEET # 1

PHYSICS Class X

1. When a water wave goes from shallow to deep water, the changes (if any) in its speed, wavelength and frequency are

	Speed	Wavelength	Frequency
A	greater	greater	the same
B	greater	less	less
C	the same	less	greater
D	less	the same	less

2. Sound and light waves

A travel through a vacuum

B travel as longitudinal waves

C travel with the same speed in air

D can be diffracted

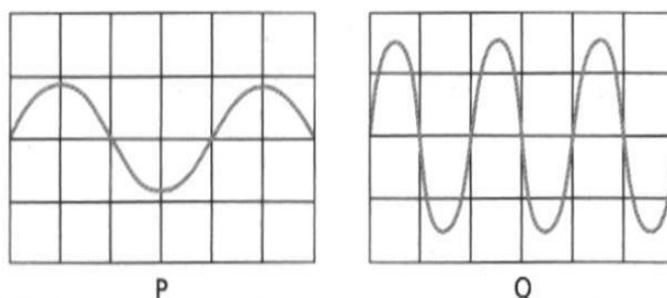
3. The waveforms of two notes P and Q are shown below. Which one of the statements A to D is true?

A. P has a higher pitch than Q and is not so loud.

B. P has a higher pitch than Q and is louder.

C. P and Q have the same pitch and loudness.

D. P has a lower pitch than Q and is not so loud.



4. Examples of transverse waves are 1 water waves in a ripple tank 2 all electromagnetic waves 3 sound waves.

Which statement(s) is (are) correct?

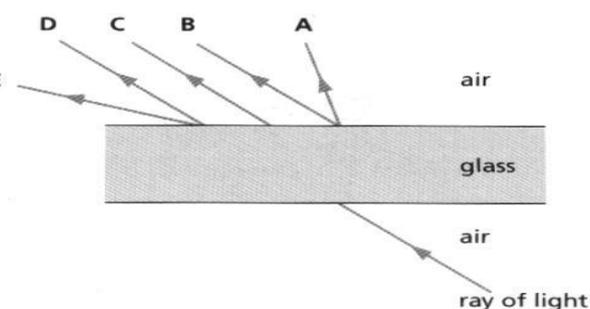
A 1,2,3

B 1,2

C 2,3

D 1

5. In the diagram below which of the rays A to E is most likely to represent the ray emerging from the parallel-sided sheet of glass?



6. The focal length of a thin converging lens is 10cm. What is the maximum distance from the lens that the object can be placed so that the lens acts as a magnifying glass?

a. 5cm b. 10cm c. 15cm d. 20cm

7. If a charge of 60 coulomb flows through the cross section of a conductor in one minute, the current flowing through it is

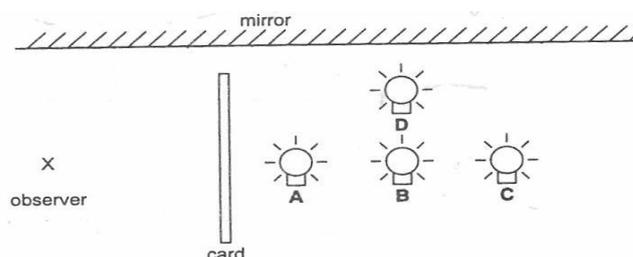
(a) 60 A

(b) 3600 A

(c) 30 A

(d) 1A

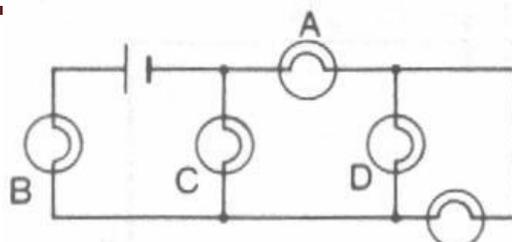
8. The diagram shows four lamps in front of a plane mirror. The card prevents the observer at X from seeing the lamps directly, although the image of one lamp can be seen in the mirror. Which lamp's image can be seen?



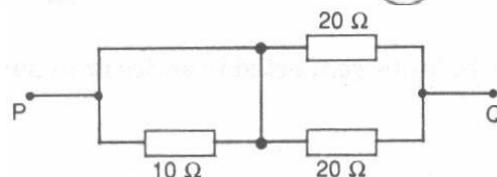
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9. If the distance between the two charged bodies is halved, the coulomb's force between them becomes
 (a) Double (b) Half (c) One fourth (d) Four times
10. Which type of wave is longitudinal?
 a) Light wave (b) radio wave (c) sound wave (d) surface water wave
11. A wave source of frequency 1000Hz emits waves of wavelength 0.10 m. How long does it take for the waves to travel 2500 m?
 a) 2.5s (b) 4.0s (c) 25s (d) 100s
12. Two capacitors of $3\mu\text{F}$ and $6\mu\text{F}$ are connected in series, their equivalent capacitance is:
 a) $9\mu\text{F}$ (b) $2\mu\text{F}$ (c) $3\mu\text{F}$ (d) $\frac{1}{2}\mu\text{F}$
13. The resistances of 2Ω , 5Ω , 7Ω , 9Ω are connected in parallel. If the potential difference across the 5Ω resistance is 5V, the potential difference across the 9Ω resistance will be:
 a) 5 V (b) 9 V (c) 1.5 V (d) 2.5 V
14. Two resistors of $4\mu\Omega$ are joined in series, the combined resistance is:
 a) $2\mu\Omega$ (b) $\frac{1}{2}\mu\Omega$ (c) $8\mu\Omega$ (d) $\frac{1}{8}\mu\Omega$
15. An electric kettle for use on a 230V supply is rated at 3000W. For safe working, the cable should be able to carry at least current
 A 2A (B) 5A (C) 10A (D) 15A

16. A cell lights all five lamps as shown in Fig. Which one of the lamps A, B, C or D, if removed, would cause all the lights to



17. The effective resistance between terminals P and Q in the circuit shown in is
 a) 10Ω (b) 30Ω (c) 20Ω (d) 40Ω



18. A billion electrons are added to a pith ball. Its charge is
 A. $1.6 \times 10^{-28} \text{ C}$ (B) $-1.6 \times 10^{-10} \text{ C}$ (C) $1.6 \times 10^{-10} \text{ C}$ (D) Zero
19. If the lens is thick the focal length would be
 A. less (B) greater (C) some time less (D) some time greater
20. In a series combination of resistances
 (a) The voltage across each resistor is the same
 (b) The equivalent resistance is the sum of the reciprocals of the individual resistors.
 (c) The current through each resistor is the same
 (d) None of the above

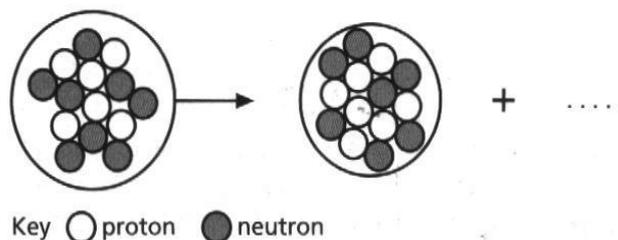
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21. Three resistors of resistance 3 ohm each are connected in parallel, their equivalent resistance is
 a) 1 ohm (b) 1.5 ohm (c) 3 ohm (d) 9 ohm

22. The diagram below represents the decay of a nucleus of $^{14}\text{C}_6$.

Use the diagram to write down what happens to the numbers of protons and neutrons when C decays.

- a) Alpha decay b) beta decay
 c) alpha and beta decay d) gamma only



23. The name of the logic gate is



- a) AND gate b) OR gate c) NOT gate d) NAND gate

24. The half-lives of these isotopes are given in the table.

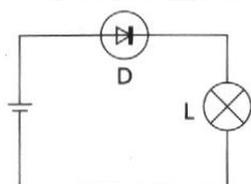
Radon-220 has a short half-life and it emits the least penetrative of the three main types of radioactive emission..

How much radon would be left after 208 seconds?

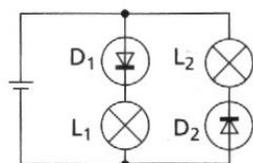
- a) $\frac{1}{4}$ b) $\frac{1}{16}$
 c) $\frac{1}{64}$ d) $\frac{1}{32}$

Isotope	Half-life
radium-224	3.6 days
radon-220	52 seconds

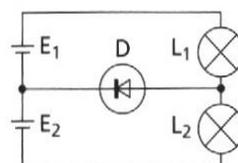
25. Figure shows a lamp, a semiconductor diode and a cell connected in series. The lamp lights when the diode is connected in this direction.



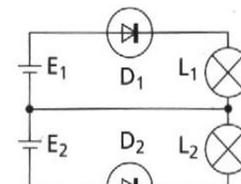
A



B



C



D