



TEST PAPER: PHYSICS

Time: 45 Minutes

Class: CBSE 9

Max. Marks: 30 Marks

Date: 12th December 2018

Marking Scheme: All questions carry 10 marks each. Subparts (A) and (B) carry 3 marks each and subpart (C) carries 4 marks.

Question 1:

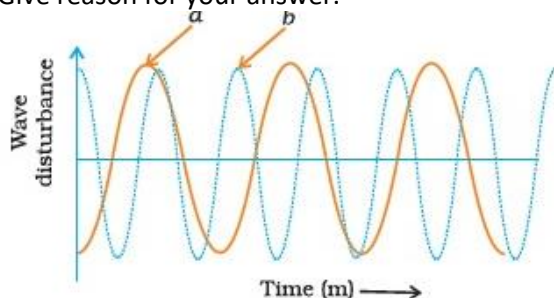
- A. Define the following related to sound wave:
 - i. Amplitude
 - ii) Frequency
 - iii) Time period
 - iv) wavelength
- B. What are different applications of high frequency waves (Ultrasound)? (Give 5 applications). What is the range of frequencies associated with ultrasound?
- C. A stone is dropped from top of the tower 500m high into a pond of water at the base of the tower. When is the splash heard at the top? Given $g=10\text{m/s}^2$ and speed of sound = 340 m/s.

Question 2:

- A. Fill in the blanks:
 - i. Audible range of hearing for human beings is _____
 - ii. Outer ear which collects the sound from surroundings is called _____
 - iii. SONAR stands for _____
- B. Answer the following:
 - i. A sonar device on a submarine sends out signal and receives echo 5 sec later. Calculate the speed of sound in water if the distance of the object from the submarine is 3625 m.
 - ii. What is echo? What is the minimum distance between reflecting surface and source of sound for the echo to be heard?
- C. Solve:
 - i. A person has a hearing range from 20hz to 20khz. What are the typical wavelengths of sound waves in air corresponding to these two frequencies? Take the speed of sound in air as 344 m/s.
 - ii. The frequency of a source of sound is 100 hz. How many times does it vibrate in a minute?

Question 3:

- A. Answer the following:
 - i. Does sound follow the same laws of reflection as light does?
 - ii. Which wave property determines loudness and pitch?
 - iii. Write down relationship between time period and frequency.
- B. Give reasons:
 - i. Ceilings of concert halls are curved.
 - ii. Sound cannot travel in vacuum.
- C. Answer the following:
 - i. Which of the following two graphs (a) and (b) representing the human voice is likely to be the male voice? Give reason for your answer.



- ii. Represent graphically by two separate diagrams following cases:
 - a. Two sound waves having same amplitude but different frequencies.
 - b. Two sound waves having different amplitudes but same frequencies.