TBSG & TBSW Class 10- Physics

Total points 14/15

Chapter: Sound (Attempt all the Questions)

Name: Roll No: *

Manan Y Mehta

✓ 1. Waves that require a medium to travel are called electromagnetic waves. * 1/1

- ○ True
- ◉ False ✓

Feedback

They are called mechanical waves.

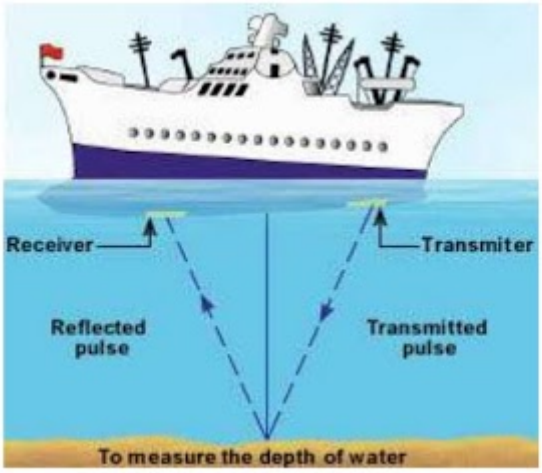
✓ 2. The minimum distance required for an echo to be heard is: * 1/1

- 17 cm
- 1 km
- 17m ✓
- 12 feet

Feedback

Sound persists in our ear for 0.1 s and speed of sound is 340 m/s so distance required is (v x t) 2 = (340 x 0.1)/2 = 17 m.

3. Observe the picture and answer the questions based on it:



✓ a) Identify the device. * 1/1

- ○ RADAR
- ◉ SONAR ✓
- ○ REFLECTOR

Feedback

SONAR stands for sound navigation and ranging

✓ b) What is the type of wave transmitted by this device? * 1/1

- ◉ ultrasonic ✓
- ○ infrasonic
- ○ audible

Feedback

Correct

✓ c) What is the range of the wave that you have selected in Q b. * 1/1

- 0 Hz to 19 Hz
- 20 Hz to 20000 Hz
- (✓) 2 kHz and above

Feedback

Ultra sonic waves have a frequency greater than 20000 Hz or 20 kHz

✓ d) Why the waves named by you in Q (b) used in this device? * 1/1

- Because the travel very fast
- They have a suitable wavelength
- (✓) They travel long distances without deviating

✓ 4) Pick the correct sequence on which the following depend: Loudness, Timbre, Pitch 1/1

- Frequency, waveform, amplitude
- Amplitude, frequency, waveform
- Waveform, amplitude. frequency
- (✓) Amplitude, waveform, frequency

✓ 5) Three instruments give out frequencies as follows: Flute- 400 Hz, Guitar- 200 Hz, Trumpet 500 Hz. Which of these has the highest pitch? * 1/1

- ○ Guitar
- ◉ Trumpet ✓
- ○ Flute

Feedback

Pitch is directly proportional to frequency but inversely proportional to the length of the vibrating body.

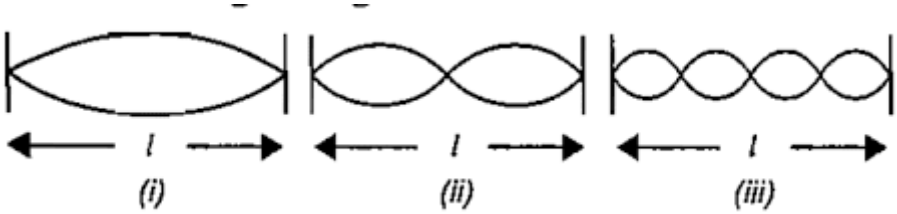
✓ 6) With which of the following frequencies will a tuning fork of 256 Hz resonate. * 1/1

- ○ 288 Hz
- ◉ 512 Hz ✓
- ○ 178 Hz
- ○ 314 Hz

Feedback

512 is the multiple of 256 which is the natural frequency of the tuning fork

7) Observe the picture and answer the questions that follow:



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✓ a) Which of the above will produce the loudest sound? * 1/1

- (i) ✓
- (ii)
- (iii)

Feedback

(iii) because it has the maximum amplitude

✓ b) Which will produce the shrillest sound? * 1/1

- (i)
- (ii)
- (iii) ✓

Feedback

Because frequency is maximum

✗ c) What is the ratio of frequency of (i) and (iii)? * 0/1

- ○ 1:1
- ○ 1:2
- ◉ 1:3 ✗
- ○ 1:4

Correct answer

- ◉ 1:4

✓ 8) A person standing between two vertical cliffs and 480 m from the nearest cliff shouts loudly. He hears the first echo after 3 s and the second echo 2 s later. a) Calculate the speed of sound. * 1/1

- ○ 340 m/s
- ○ 80 m/s
- ◉ 320 m/s ✓

Feedback

v= 2d/t or v= (2 x 480) /3 =320 m/s

✓ b)Based on the above question, the distance of the person from the second cliff will be * 2/2

- ○ 320 m
- ○ 1280 m
- ◉ 800 m ✓

Feedback

d= (v x t)/ 2 ; d= (320 x 5)/2 = 800 m. Time for second echo was 2 s after the first i.e, 5 s (3+2) after original sound.