VII- 2.Wave and Sound

Exercise Solutions

Level-1

1. (c)
Velocity of sound in solids is greater than liquid and gases.

2. (a)
Frequency = No. of oscillations in one second.

3. (a)
In humans, the sound is produced by laryax.

4. (d)
Television causes less noise pollution.

5. (d)
$v = f\lambda$

$$\lambda = \frac{v}{f} = \frac{500}{10\times10^{3}} = 50\times10^{-3}\,m = 5cm$$

6. (c)
Speed of light > speed of sound.

7. (b)

$$T = \frac{1}{f} \Rightarrow f = \frac{1}{T} = \frac{1}{0.2} \Rightarrow 5Hz$$

8. (b)

$$Hertz = \frac{1}{Second} = Second^{-1}$$

9. (d)
Sound cannot travel through vacuum.

10. (b)
In flute air column produces sound.

11. (b)
Frequency = No. of oscillations in one second

$$f = \frac{15}{3} = 5Hz$$

12. (a)
Solid > liquid > gas

13. (a)
Pitch of sound depends upon frequency

14. (d)
Birds produce sound by using syrinx

15. (c)
Higher is the frequency of vibration, higher is the pitch

16. (d)

17. (c)

Level -2

1. (c)
Loudness change with change of amplitude

2. (c)
In solid velocity of sound is maximum.

3. (c)
Sound produced disturbance in the medium

4. (a)
Sound produced in flute because air starts vibrating

5. (a)
More oscillation per second, higher frequency

6. (c)
The buzzing sound produced by a mosquito is produced by vibration of wings

7. (b)
Air

8. (d)
Sound cannot travel through vacuums

9. (d)
Amplitude because loudness is depends upon amplitude.

10. (b)
20 Hz to 20 KHz a normal human being be able to hear sound.

11. (b)
Frequency remains same in both medium.

Subjective Questions:

1. (a) Theory page no. 15

(b) Theory page no. 15

2. Page No. 17 - 18

3. Page No. 19 – 20

4. $v = 330 m/s$

$f_1 = 100Hz,\ f_2 = 1000Hz,\ f_3 = 10,000Hz$

$v = f\lambda$

$\lambda_1 = \frac{v}{f_1} = \frac{330}{100} \Rightarrow 3.3m$

$\lambda_2 = \frac{v}{f_2} = \frac{330}{1000} \Rightarrow 33 \times 10^{-2}\ m$

$\lambda_3 = \frac{v}{f_3} = \frac{330}{10,000} \Rightarrow 33 \times 10^{-3}\ m$

5. Theory page no.-16