Chapter 7 – Sound

A. Objective Questions

1. Write true or false for each statement

(a) When sound propagates in air, it does not carry energy with it.

Solution: False.

(b) In a longitudinal wave, compression and rarefaction are formed.

Solution: True.

(c) The distance from one compression to nearest rarefaction is called wavelength.

Solution: False.

(d) The frequency is measured in second.

Solution: False.

(e) The pitch of a sound depends on the amplitude of wave.

Solution: False.

(f) The pitch of a sound depends on the amplitude of wave.

Solution: True.

(g) Decibel is the unit of pitch of a sound.

Solution: False.

Question 2

Fill in the blanks

(a) The time period of a wave is 2 s. Its frequency is **$0.5S^{-1}$**

(b) The pitch of a stringed instrument is increased by **increasing** tension in string.

(c) The pitch of a flute is decreased by **increasing** length of air column.

(d) Smaller the membrane, **higher** is the pitch.

(e) If a drum is beaten hard, its loudness **increases**.

(f) A tuning fork produces sound of **single** frequency.

Question 3

Match the following

(a) Amplitude (i) 1/time period

(b) Frequency (ii) amplitude

(c) Loudness (iii) maximum displacement

(d) Pitch (iv) presence of other frequencies

(e) Waveform (v) frequency

Solution:

Column A	**Column B**
(a) Amplitude	(iii) maximum displacement
(b) Frequency	(i) 1/time period
(c) Loudness	(ii) amplitude
(d) Pitch	(v) frequency
(e) Wave form	(iv) presence of other frequencies

Question 4

Select the correct alternative

(a) Sound can not travel in

1. solid

2. liquid

3. gas

4. vacuum

Answer: 4. vacuum

(b) When sound travels in form of a wave

1. the particles of medium move from the source to the listener

2. the particles of medium remains stationary

3. the particles of medium start vibrating up and down

4. the particles of medium transfer energy without leaving their mean positions.

Answer: 4. the particles of medium transfer energy without leaving their mean positions.

(c) The safe limit of loudness of audible sound is

1. 0 to 80 dB

2. above 80 dB

3. 120 dB

4. above 120 dB

Answer: 1. 0 to 80 dB

(d) The unit of loudness is

1. cm

2. second

3. hertz

4. decibel

Answer: 4. decibel

(e) In a piano, pitch is decreased by

1. using thicker string

2. increasing tension

3. reducing length of string

4. striking it hard

Answer: 1. using thicker string