



## Part I

**Underline the most appropriate answer**

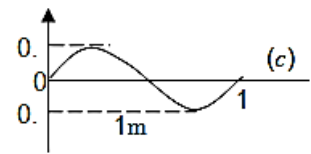
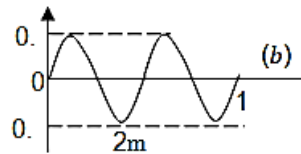
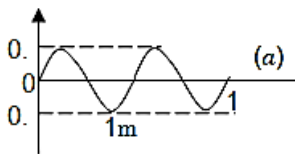
1. The wave that propagates in the direction perpendicular to the direction of the motion of particle of the medium is called as

- 1) Mechanical wave  
2) Electromagnetic wave  
3) Transverse wave  
4) Longitudinal waves

2. Which of the following is a longitudinal wave?

- 1) Sound wave  
2) Light wave  
3) The waves produced in surface of water  
4) Radio waves

3. The following figures show the shapes that are produced on different strings in unit time.



Which of the above waves have the same frequency?

- 1) a, b  
2) b, c  
3) a, c  
4) a, b, c
4. What is the wavelength of a wave which has 330 Hz frequency when vibrated? (speed of sound in air is  $330\text{ms}^{-1}$ )

- 1) 330m  
2)  $1/330\text{m}$   
3)  $330/330\text{m}$   
4)  $330 \times 330\text{m}$

5. Which electromagnetic wave is used to destroy cancer cells

- 1) Ultra violet ray  
2) Gamma wave  
3) Infrared ray  
4) Micro wave

6. How does the speed of the sound change when the temperature of air is increased

- 1) Decreases  
2) No change  
3) Increases  
4) Cannot say

7. What is meant by ultrasound

- 1) Sound below 20Hz  
2) Sound above 20Hz  
3) Sound in between 20Hz-20000Hz  
4) Sound below 20000Hz

8. Select the order of speed of sound increases in the following media

X- Solid      Y- Liquid      Z- Gas

- 1)  $X < Y < Z$   
2)  $Y < Z < X$   
3)  $Z < Y < X$   
4)  $Z < X < Y$

9. Which does not depend on the frequency of sound in string instruments

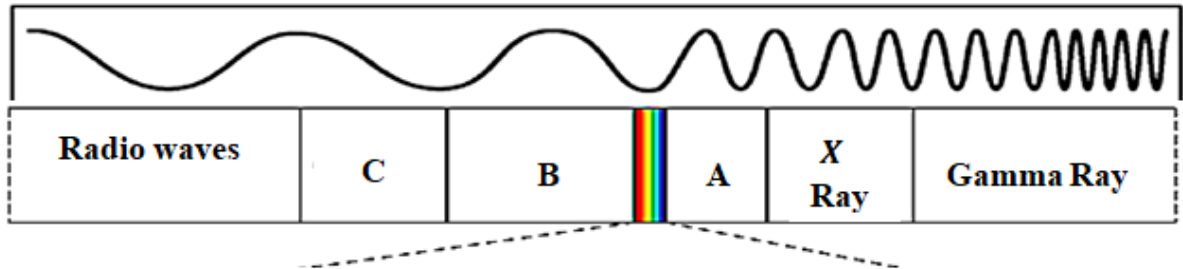
- 1) Shape of string  
2) Length of the string  
3) Tension of the string  
4) Mass of unit length of string

10. What is meant by lithotripsy?

- 1) Blasting of bladder stones by using of ultrasound
- 2) Filtering the nitrogen wastage in blood
- 3) Blood transmission
- 4) Observe the fetus inside the womb

**Part II A (Structured Questions)**

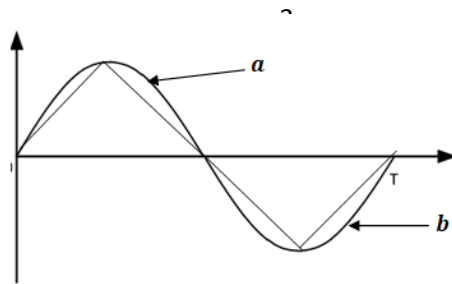
I. Some types of waves are shown below



- (1) How the above waves are called?  
..... (2 Marks)
- (2) Write down the characteristic of above waves  
..... (2 Marks)
- (3) Name the types of waves referred by A,B,C  
A..... B..... C..... (3 Marks)
- (4) a) Which of the above waves have high frequency?  
..... (2 Marks)
- b) Which of the above waves have high wavelength?  
..... (2 Marks)
- (5) Write one use of X ray.  
..... (2 Marks)
- (6) Which wave is used in banks to check hidden symbols in current notes?  
..... (2 Marks)
- (7) Which ray is used to send signals to television sets from the remote controls?  
..... (2 marks)
- (8) Which rays are used in microwave ovens?  
..... (2 Marks)

II.

- (1) Write three main characteristics of sound.  
..... (3 Marks)



(2) Which main characteristic of sound is the same as in the above waves a and b?  
(2 Marks)

.....

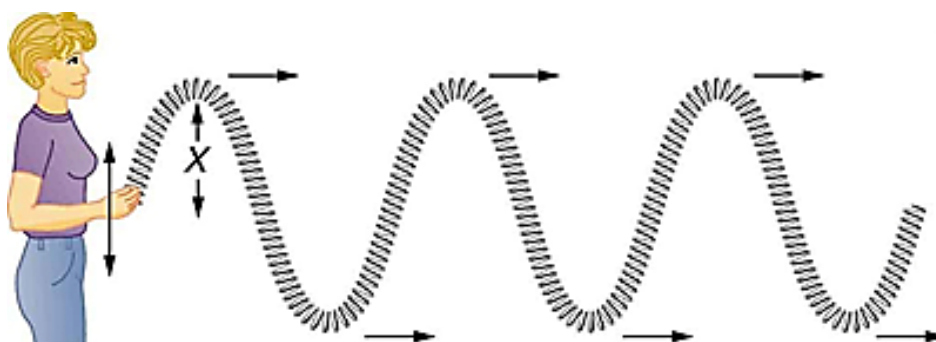
(3) Write the types of main musical instruments and write one example for each.  
(6 Marks)

.....  
 .....  
 .....

(Total = 30 Marks)

**Part II B (Essay Questions)**

(1) A) Following figure shows a slinky that is tied on a table and shaken to left and right.



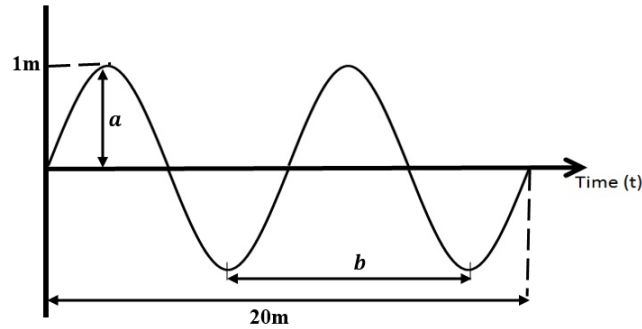
(1) Which type of mechanical wave is this? (3 Marks)

(2) Give any 02 other examples for the above mentioned wave? (6 Marks)

(3) Give another mechanical wave rather than the above mentioned wave. (3 Marks)

(4) Write two differences between the above two types of waves. (3 Marks)

B) Displacement –time graph of one particle in the above wave motion is shown below



- (1) Name the specific terms of  $a$  and  $b$ . (4 Marks)
- (2) When this wave produced 20 vibrations in 5 seconds,
  - a) What is the frequency of the wave? (5 Marks)
  - b) What is the velocity of the wave? (5 Marks)
- (3) Write two uses of ultra sound? (4 Marks)
- (4) If the time taken by ultra sound waves transmitted by a ship to reach the detector again after reflecting in bottom of sea is 6s .Find the distance between the ship and the bottom of the sea? (speed of sound in sea water is  $1500 \text{ ms}^{-1}$ ) (4 Marks)