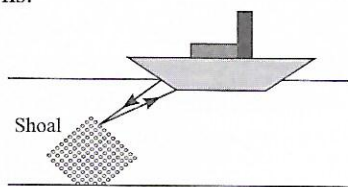


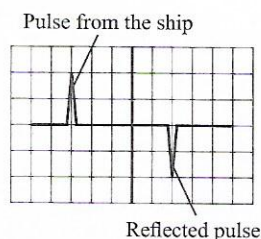
## ACHIEVERS SECTION

Direction (Q. No. 46 and 47) : Read the given passage and answer the following questions.

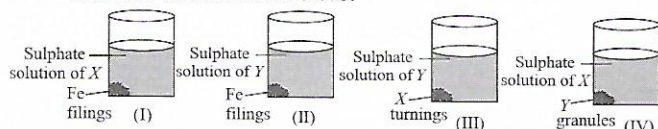
Echolocation is used to locate shoals of fish in the sea. A pulse of sound wave is sent from the ship and is reflected by the shoal as shown in figure.



The frequency of the ultrasound is 50 kHz and its speed in water is  $1500 \text{ m s}^{-1}$ . The figure shows the trace of the transmitted pulse and the reflected pulse. The time base of the device is 0.10 s per division.



46. What is the wavelength of the ultrasound in water?  
 A. 1.5 cm B. 3.0 cm C. 4.5 cm D. 6.0 cm
47. Find the distance between the shoal and the ship.  
 A. 375 m B. 750 m C. 500 m D. 1000 m
48. Ms Rashmi, a science teacher set up the given apparatus to demonstrate displacement reactions where  $X$  and  $Y$  are two unknown metals.



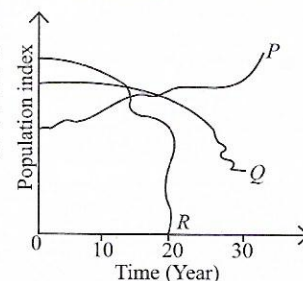
The observations are summarised in the given table.

Beaker	Observation
I	Blue colour solution changes to green.
II	No reaction takes place.
III	No reaction takes place.
IV	Blue colour solution changes to colourless.

$X$  and  $Y$  could be \_\_\_\_\_ and \_\_\_\_\_ respectively.

- A. Cu and Zn  
 B. Pb and Sn  
 C. Cu and Al  
 D. Both A and C

49. The given graph shows population index of three animal species in the world over a period of last 30 years. Select the incorrect option regarding this.



- A. Species  $Q$  and  $R$  are categorised as threatened and included in IUCN Red List.  
 B.  $P$  could be *Eichhornia* and  $R$  could be passenger pigeon.  
 C.  $P$  could be golden langur,  $Q$  could be lion-tailed macaque and  $R$  could be chinkara.  
 D. Species  $R$  can neither be conserved *ex situ* nor *in situ* as the species is extinct.
50. Rectify the given statements by replacing the underlined words (wherever necessary) and select the incorrect option.
- (i) Protoplasm occupies the space between cell membrane and the nucleus.  
 (ii) Centriole synthesises, stores and transport material within the cell.  
 (iii) Energy is synthesised and stored in the form of ATP by mitochondria.  
 (iv) By-products of metabolic activity get stored in lysosome.
- A. Protoplasm must be replaced with cytoplasm.  
 B. Centriole must not be replaced as it is correctly mentioned.  
 C. ATP must not be replaced as it is correctly mentioned.  
 D. Lysosome must be replaced with vacuole.

SPACE FOR ROUGH WORK