Sound -Chapter-12

Assessment Technique: Worksheet on connecting classroom learning to real life situations.

Objectives:

learn the meaning of the term ‘reverberation’

□ understand why excessive ‘reverberation’ is undesirable.

□ Know about the materials that can reduce ‘reverberation’.

□ Make a ‘first hand survey’ of some well known auditoriums.

Task: Individual or group

Approximate Time: one week

Procedure:

□ Explain the meaning of the term ‘reverberation’.

□ Make the students understand the kind of disturbance / problems that are likely to be caused by excessive ‘reverberation’.

□ Co-relate ‘reverberation effects’ with the phenomenon of reflection and absorption of sound.

□ Explain how reducing ‘reflection’ and increasing ‘absorption’ will lead to a decrease in ‘reverberation effects’.

Assessment Parameters: 1 mark each for the first four steps and 6 marks for the fifth steps.

Student Worksheet

Instructions:

Answer the following questions and also carry out the other steps.

(i) How do ‘repeated reflection’ of sound lead to the phenomenon of ‘reverberation’?

(ii) What basic steps are taken to reduce reverberation?

(iii) Why is excessive reverberation undiserable?

(iv) Collect information about few well known auditoriums and make a list of their names and locations.

(v) Also get information about different materials used on their seats, walls and ceilings and reasons for the same.

Make a brief report of collected nformation..

Student Worksheet

Instructions:

Answer the following questions:

(i) Write the (approximate) range of frequencies of ultra sounds’

(ii) State one important use of ‘ultra sounds’ in industries.

(iii) State two important uses of ‘ultrasound’ for medical purposes.

(iv) Explain, in brief, how ‘bats’ make use of ‘ultrasounds’ in their daily life.

(v) Is there any link between the intelligence of dolphins and their ability to ‘hear’ ultra sounds.

Suggestive Remediation:

□ The topic can be made interesting by relating it to number of examples in daily life.

□ Make students aware of the range of frequencies of the ‘ultrasounds’.

□ Provide students with information / diagrams / pictures / photographs of applications of ‘ultrasounds’ in industries and medical field.

□ Make students aware of how

(i) bats use ‘ultrasounds’ for ‘finding their way’.

(ii) dolphin’s use ‘ultrasounds’ to show their remarkable skills and intelligence.

Assessment Technique Individual Worksheet

Objectives: To enable the students to–

□ Understand The full form of the term ‘SONAR’ and the meaning of this term.

□ Learn basic details of use of SONAR for finding the distance, direction and speed of underwater devices.

□ Do numerical calculations associated with ‘SONAR’.

Approximate Time: 15 Minutes

Procedure: The Teacher may–

□ Explain the meaning of the term ‘Navigation’ and ‘Ranging’ in the full form of the term ‘SONAR’.

□ Discuss why it is preferable to use ‘ultra sounds’, rather than audible sounds, in ‘SONARS’.

□ Do simple numerical calculations to explain the use of ‘SONAR’ for finding the distance and speed of on underwater objects.

Assessment Parameters: 1 mark for every correct answer.

Student Worksheet

Instructions: Read the following information carefully and answers the questions that follow:

● A ‘SONAR’ sends out ultra sounds, of frequency 60 kHz, towards an under water submarine, at time t = os.

● The reflected signal, from the sub-marine is received at t = 2s.

● The speed of the ultra sounds in sea water is 1530 m/s

(i) What is the full form of the term ‘SONAR’?

(ii) What is the meaning of the term ‘Navigation’?

(iii) What is the meaning of the term ‘Ranging’?

(iv) What is the depth of the sub-marine?

(v) Can we use SONAR for finding the speed of the sub-marine if it were moving underwater?

Suggestive Remediation:

□ Some students may find if difficult to understand the meaning of the terms ‘Navigation’ and ‘Ranging’: Explain in general terms the broad meaning of thee two terms.

□ Explain by taking some suitable example why the distance of the underwater object is given by the relation. Distance = (speed in water) x half of the time between the ‘sending’ and the ‘receipt’ of the under water signal.