SUBJECT:

PHYSICS

CLASS:

SENIOR SECONDARY SCHOOL 2

TERM:

THIRD

SCHEME OF WORK

WEEK TOPIC

1. Triangular and Rectangular glass prism - Angle of deviation and calculation; real and apparent depth
2. Lenses - types of lenses, image formation in lenses, lens formula and calculations
3. Optical instruments - camera, projector, telescope, simple and compound microscope
4. Optical instruments - binoculars, human eye, defects and correction
5. Dispersion of white light - production of pure and impure spectrum, recombination of components of spectrum using colour filter, newton disk
6. Dispersion of white light - colour and paints, mixing, determination of refractive index
7. Sound wave - production, transmission, speed of sound in solid, liquid, air; noise and music
8. Sound wave - Effects of temperature and pressure on velocity of sound, echo and its application, reverberation, characteristics of sound, forced vibration, resonance functions of hearing aids
9. Resonance - vibration in pipes and string, musical instruments, harmonics and overtones
10. Practical
11. Revision
12. Examination

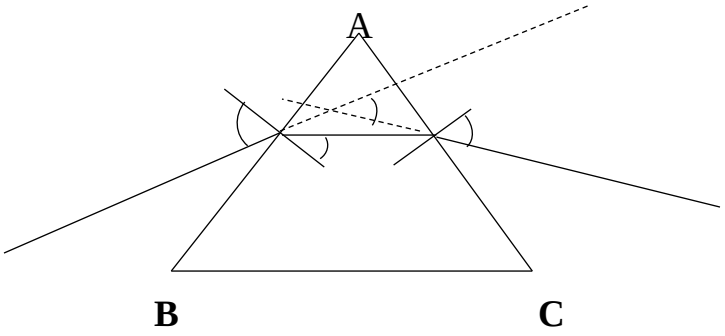
WEEK ONE

REFRACTION THROUGH TRIANGULAR AND RECTANGULAR PRISM

- Triangular prism
- Rectangular prism
- Angle of deviation
- Real and apparent depth

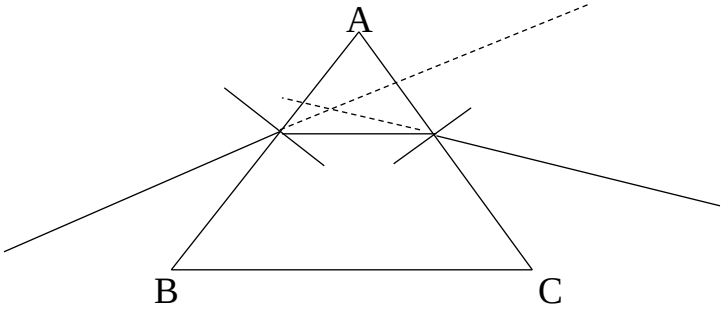
Triangular prism

When a ray of light passes through a triangular prism, it is refracted as shown below



Angle of deviation

The angle between the incident ray and the emergent ray is known as the angle of deviation. The angle of deviation decreases as the angle of incidence increases



The refractive index, n=sin (A/2+D/2)/sin A/2

Rectangular prism

Real and apparent depth

A thick slab of glass appears to be only two –third of its real thickness when viewed vertically from above. Similarly, water in a pond appears to be only three quarters of its real depth. Rays from a coin at the bottom of a bucket of water are refracted away when they leave water and enter the eyes. They appear as if coming from a virtual image, which is apparent depth while the actual depth of the bottom remains and is referred to as real depth

Refractive index=real depth/apparent depth

CLASSWORK 1

1. Define the refraction of a medium
2. A ray of light is incident on an angle of 30^0 on a glass prism of refractive index 1.5. Calculate the angle through which the ray is minimally deviated in the prism. (The medium surrounding the glass is air)

ASSIGNMENT 1

SECTION A

1. A transparent rectangular block 3.0cm thick is placed on the letter A written on a white cardboard. When the letter was viewed from the top of the glass block, it appeared to be 2cm. calculate the refractive index of the block (a) 3/2 (b) 5/3 (c) 1/2 (d) 3/2
2. The velocities of light in air and glass are 3.0 $x10^8$ m/s and 1.8 $x10^8$ m/s respectively. Calculate the sine of the angle of incidence that will produce an angle of refraction of 30^0 for a ray of light incident on glass A 1.2 B 1.0 C 0.8 D 0.6
3. A transparent rectangular block 5.0 cm thick is placed on a black dot. The dot when viewed from above is seen 3.0 cm from the top of the block. Calculate the refractive index of the material of the block A 2/5 B 3/5 C 3/2 D 5/3 E 5/2
4. The horizontal floor of a water reservoir appears to be 1.0m deep when viewed vertically from above. If the refractive index of water is 1.35, calculate the real depth of the reservoir (a) 2.35m (b) 1.35m (c) 1.00m (d) 0.35m

5. A beam of light travelling through air at $3.0x10^8$m/s enters a pool of water of refractive index 4/3, what is its speed as it travels through water (a) $2.25x10^8ms^{-1}$ (b) $3.25x10^8ms^{-1}$ (c) $4.25x10^8ms^{-1}$ (d) $5.25x10^8ms^{-1}$
6. The absolute refractive indexes of glass and water are 3/2 and 4/3 respectively. The refractive index at the interface when a ray travels from water to glass is A ½ B 8/9 C 9/8 D17/12

Use the information below to answer questions 7, 8 and 9

The angle of incidence of a narrow beam of light on a side of an equilateral triangular prism is 48^0. Calculate the:

7. Angle of minimum deviation (a) 36^0 (b) 30^0 (c) 45^0 (d) 60^0
8. Angle of refraction (a) 36^0 (b) 30^0 (c) 45^0 (d) 60^0
9. Refractive index of the material of the prism (a) 1.50 (b) 1.26 (c) 0.55 (d) 2.0
10. A ray of light is incident normally on an air-glass interface. What is its angle of refraction? (a) 90^0 (b) 60^0 (c) 30^0 (d) 0^0

SECTION B

1. State the laws of refraction of light
2. A triangular glass prism of thickness 10cm is placed on a dot on a piece of paper resting on a horizontal bench. (a) Draw a ray diagram to show the apparent position of the mark in the glass prism. (b) Calculate the apparent displacement of the mark, if the refractive index of the material of the prism is 1.5
3. A ray experiences minimum deviation 40^0 when passing symmetrically through an equilateral glass prism. Calculate the angle of incidence of the ray (refractive index of glass = 1.5)

WEEK TWO
LENSES - TYPES OF LENSES, IMAGE FORMATION IN LENSES, LENS FORMULA AND CALCULATIONS

- Types of lenses
- Image formation in lenses
- Lens formula an

LENSES

Lenses are used as magnifying glasses. They are also used in microscopes, telescopes, cameras and projectors. The human eye has a natural lens and which enables people to see clearly. There are two types of lenses: Converging and Diverging lenses.

The converging lens brings light rays together while the diverging lens spreads light rays apart.

A converging (convex) lens bulges at the centre while diverging lens gets thinner at the centre.

TERMINOLOGIES

Terms which are commonly used in lenses include, principal axis of a lens, the principal focus of a lens, optical centre of a lens, and focal length of a lens. The principal axis of a lens is the line joining the centre of curvature of the two surfaces of the lens, and passing through the middle of the lens.

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The principal focus of a lens is the point on the principal axis to which all rays parallel and close to the axis converge or diverge, after refraction the lens. The principal focus of a converging lens is real, while that of a diverging lens is virtual.

The optical centre of lens is defined as the centre of the lens which is a point on the principal axis of the lens. Rays of light which pass through the optical centre are undeviated. The focal length of a lens is the distance between the optical centre and the principal focus of the lens.

FORMATION OF IMAGES IN LENSES

COVERGING LENS

To produce the image of an object by a converging lens, two major rays are required:

(1) A ray from the top of the object incident on the middle, c, of the lens and passes through the lens undeviated.

(2) A ray from the top of the object parallel to the principal axis, incident on the lens, and refracted through the principal focus, F. At the point where these two rays interact, the image of the object is formed.

OBJECT AT INFINITY

When an object is very far from the lens i.e at infinity, the image is real, inverted and formed at the focus of the object beyond 2f1.

OBJECT BEYOND 2F1

When an object is very far from the les i.e at infinity, the image is real, inverted and formed at the focus of the object beyond 2f1.

OBJECT BEYOND 2F1

When an object is placed beyond 2F1, the image of the object is formed between F and 2F and is real, inverted and smaller than the object (diminished).

POWER OF A LENS

The power of a lens is the reciprocal of the focal length of a lens in metres.

$P = 1/f$

THE SIMPLE MICROSCOPE OR MAGNIFYING GLASS

A complex lens gives an enlarged upright virtual image of an object placed inside the principal focus. This constitutes a simple microscope. It is used for reading and studying biological specimens.

CLASSWORK 2

1. (a) Define the focal length of a converging lens
   (b) Draw a simple ray diagram of an object placed at the center of curvature of a converging lens and when between the center of curvature and the focus
2. A small image is viewed through a converging lens held close to the eye. If the focal length of the lens is 10cm and a virtual image of height 2cm is formed 30cm away from the lens, obtain by calculation (i) the distance of object from the lens (ii) the size of the object

ASSIGNMENT 2

SECTION A

1. The image formed by a converging lens is 3 times as tall as the object. If the focal length of the lens is 12cm, calculate the distance of the image from the object (a) 16cm (b) 48cm (c) 32cm (d) 64cm
2. Which of the following correctly describe the image formed by a diverging lens? (a) Diminished, erect and virtual (b) Diminished, inverted and real (c) Magnified, erect and virtual (d) Magnified, inverted and real
3. The distance between optical centre and twice the principal focus of a lens is called……. (a) Optical centre (b) focal length (c) principal axis (d) radius of curvature
4. A pin 6cm high is placed in frontof a diverging lens of focal length 15cm. calculate the position of the image formed (a) -15cm (b) 15cm (c) -10cm (d) 10cm
5. Calculate the power of a converging lens with a focal length of 5cm (a) +0.0D (b) +0.2D(c) -20.0 (d) -0.2D

6. An object is placed 20cm from a converging lens. If the real image formed is 80cm. Find the focal length of the lens? (a)15cm (b) 30cm (c) 10cm (d) 16cm
7. Inability of the eye to focus near objects is known as: (a) astigmatism (b) hypermetropia (c) myopia (d) presbyopia
8. An object placed 15cm from a converging lens from a real image whose magnification is 2.0. What is the focal length of the lens? (a) 10.0cm (b) 6.00cm (c) 5.00cm (d) 1.50cm
9. A converging lens produces an image four times as large as an object placed 25cm from the lens. Calculate its focal length (a) 100cm (b) 33cm (c) 29cm (d) 20cm
10. A convex lens of focal length 15cm forms a real image 45cm from the lens. Find the magnification of the image (a) 1 (b) 2 (c) 3 (d) 4

SECTION B

1. (a) Define the following terms (i) focal length (ii) principal axis of a converging lens
   (b) Distinguish between a real and a virtual image and draw ray diagrams to illustrate how a converging lens can be used to produce each type of image
2. The screen of a pinhole camera is a square of side 0.16m and it is 0.15m behind the pin hole. The camera is placed 11m from a flag staff and positioned so that the image of the flag staff is formed centrally on the screen. The image occupies three quarters of the height of the screen. What is the height of the flag staff?
3. Draw the ray diagram of an object placed (i) at F (ii) at 2F (iii) between 2F and F of a converging lens

WEEKS THREE & FOUR

OPTICAL INSTRUMENTS

- The Compound Microscope
- The Astronomical Telescope
- The Human Eye

THE COMPOUND MICROSCOPE

The compound microscope produces a greater magnification than the simple microscope. It has two lenses, the objective lens which has a short focal length and the eye piece used as the magnifying glass to view an image formed by the objective lens.

The image formed by the objective lens is within the principal focus of the piece. So a final image is formed at the least distance of distinctive vision from the eye.

THE ASTRONOMICAL TELESCOPE

An astronomical telescope is used for viewing distance objects like stars and planets. The astronomical telescope uses two convex lenses; the objective lens and the eye piece.

The objective lens has a long focal length and forms a real image of a distant object at its focal plane. The position of the eyepiece and the objective lens must coincide along the principal focus so that the final image is at infinity. The astronomical telescope gives an inverted image which can be tolerated when looking at the stars but is at a disadvantage on the earth.

THE HUMAN EYE

The optical system of the eye consist of the cornea, the aqueous, the vitreous humour and the lens. They form a real and inverted image of an external object on the retina. The retina transmits the impression created on it by the image through the optic nerve to the brain. The brain then interprets the impression. The amount of light entering the eye through the pupil is regulated by the iris.)

(a) A long sighted person can see objects at a distance but cannot see close objects clearly. His near point is more than 25cm which is the near point of the normal eye. It is caused by the eye ball being too short so that rays from object at 25cm from the eye are brought to focus behind the retina. It is corrected by converging lens placed in front of the eye for near vision.

(b) A short sighted person cannot see distant objects clearly as rays from such objects are focused in front of the retina. His far point is less than the normal far point which is at infinity. It is corrected by the use of diverging lens. The diverging lens makes the object at infinity to appear to be at the person's far point.

CLASSWORKS 3&4

1. Explain these eye defects with their corrections (a) Hypermetropia (b) Myopia (c) Astigmatism
2. Write short note on these: (a) Accommodation (b) near point (c) far point
3. Give 3 differences between the camera and the eye
4. Highlight 3 similarities of the eye and the camera

ASSIGNMENT 3&4

SECTION A

1. For correcting long sight defects in the human eyes, we require …….. (a) Converging lens (b) diverging lens (c) microscope (d) periscope
2. A magnified and virtual image of a near object is produced by (a) prism binocular (b) astronomical telescope (c) periscope (d) simple periscope
3. When an astronomical telescope is in normal adjustment, the focal length of the objective lens is 50cm and that of the eye piece is 5.0cm. What is the distance between the lenses (a) 10.0cm (b) 30.0cm (c) 45.0cm (d) 55.0cm
4. Which of the following optical instruments does not make use of a lens? (a) projector (b) periscope (c) eye (d) microscope
5. The ability of the eye to focus object at different distances is called …….. (a) Power (b) accommodations (c) normal vision (d) long sight
6. What part of the camera corresponds to the iris of the eye? (a) diaphragm (b) film (c) lens (d) shutter
7. Binocular vision (a) Restricts the field of view (b) Enables a person to see further (c) Enables objects to be seen in relief (d) Enables objects to be seen clearly

SECTION B

1. Illustrate with diagrams how these eye defects can be remedied by the use of suitable lenses
2. Draw the optical arrangement of an astronomical telescope in normal adjustment showing the positions of the principal foci of the lenses used and the path of two rays from the top of a distant object through the instrument to the observer's eye.
3. Explain these terms: binocular vision, persistence of vision

MID-TERM PROJECT

Using a white cardboard, draw the ***dispersion of white light*** and the colour wheel for the ***mixtures of primary colours***

WEEKS FIVE AND SIX

DISPERSION OF WHITE LIGHT

- Production of pure
- Production of impure spectrum

White light has a band of wavelengths of different colours. This is called the spectrum colours. Red light has the longest wavelength in air (700 x 10-9m) while violet light has the shortest wavelength (450 x 10-9m) in air.
In a vacuum and in air, all the colours of white light travel at the same speed. But in glass, the colours travel at different speeds. Thus, a glass prism can separate or dispute white light into its various colours or wavelengths.

White light from a source e.g. sunlight, passes through a narrow slit and is incident on the glass prism. After leaving the glass prism, white light is separated into a band or spread of impulse colours which are formed on the screen. The spectrum of white light consists of (bands of) red, orange, yellow, green, blue, indigo and violet colours (ROYGBIV). The separation of the colours by the glass prism is called dispersion. The red colour is deviated least, while the violet colour is deviated most.

PRODUCTION OF A PURE SPECTRUM

The spectrum described above is an impure spectrum, because the different bands of colour overlap. A spectrum in which such an overlap does not occur is called a pure spectrum. This can be obtained by using an arrangement of converging lenses in addition to the glass prism.

White light from a source passes through a narrow slit and are incident on the first converging lens. The slit is located at the focus of the lens, and hence the white light is rendered parallel after refraction through the lens. Thus, a beam of parallel light is incident on the glass prism. In this way, rays of the same colour will suffer the same amount of deviation by the prism, and each colour will emerge as a parallel beam. They are then brought to focus by the second converging lens. The different colours, red, orange, yellow, green, blue, indigo and violet are then brought to different foci on the screen.

COLOUR MIXING

Each colour of light has its own characteristic wavelength. If the light if the yellow wavelength enters the eye, it sees yellow. However, if a mixture of red and green light enters the eye it also sees yellow. All the colours that the eye sees can be made by mixing three basic colours, these three colours, which are called primary colours, are red, blue and green.

The colour made by mixing any two primary colours are called secondary colours. These are:

(i) red + blue = magenta
(ii) blue + green = cyan
(iii) green + red = yellow

The mixing of coloured lights is known as additive mixing. All the three primary colours mix together to give white light.

Red + blue + green = white

The operation of colour movies is based on addictive colour mixing.

COLOURED FILTERS

Coloured filters are made out of coloured glass. A coloured filter transmits its own colour, but absorbs any other colour which falls on it.

COLOURED PIGMENT

An object can only be seen when light is reflected from it into the eye. The substance which gives an object its colour is called a pigment. A pigment absorbs all colours except its own, which it reflects.

A black pigment absorbs all colours and reflects none. A white pigment reflects all colours. Coloured objects such as pigments (paints) used by painters can also be mixed together. The mixing of colours pigments is known as subtractive mixing.

CLASSWORKS 5&6

1. List the three primary colours and the secondary colours formed from the mixture of these primary colours
2. Explain the term 'dispersion of light'
3. (a) Define complimentary colours (b) List the primary colours and their corresponding compliments

ASSIGNMENTS 5&6

SECTION A

1. Which of the following colours of light is most deviated when light passes through a triangular prism? (a) orange (b) green (c) indigo (d) yellow
2. Which of the following pairs of light rays shows the widest separation in the spectrum of white light? (a) green and blue (b) orange and indigo (c) blue and violet (d) red and yellow
3. When a ray of sunlight passes obliquely through a rectangular glass block, (a) it emerges without displacement parallel to the incident ray (b) it gets dispersed into seven visible colours without any deviation at all (c) it

deviates without dispersion (d) it gets laterally displaced, and the emergent ray is parallel to the incident ray

4. The direction of a light ray changes as it passes from one medium to another. The phenomenon is called (a) diffraction (b) reflection (c) dispersion (d) refraction
5. A piece of cloth appears green in sunlight. When held in red light, it will appear (a) green (b) blue (c) red (d) black
6. The separation of white light into its constituent colour is known as (a) deviation (b)diffraction (c) dispersion (d) deflection
7. Another name for light of one wavelength or colour (a) dispersed light (b) hight light (c) monochromatic light (d) transparent light
8. The following colours are primary colours except? (a)red (b) green (c)blue (d) yellow
9. When white light passes through a triangular prism, there is dispersion because of (a) diffraction of light (b) polarization of light (c) the difference in speed of the components of light(d) the interference of light waves in glass
10. The invisible part of the spectrum of white light consists of (a) infrared and ultraviolet only (b) infrared, ultraviolet and blue only (c) red, orange and green only (d) red and violet only

SECTION B

1. Why does (a) green grass appear green and (b) red glass appear red when looked through in sunlight
2. Describe with the aid of a well labeled diagram how a pure spectrum of white light can be produced?
3. (a) Distinguish between pure and impure spectrum of white light (b) List the colours in the spectrum of white light in the descending order of wavelength

WEEKS SEVEN & EIGHT

SOUND WAVE - PRODUCTION, TRANSMISSION, SPEED OF SOUND IN SOLID, LIQUID, AIR; NOISE AND MUSIC; FORCED VIBRATION, RESONANCE

- Production of sound waves
- Transmission of sound waves
- Characteristics of sound
- Resonance

Sound waves are produced by vibrating objects. Some of the source of sound are talking, shouting, beating, beating drums, blowing of flutes, shooting of a rifle, a ringing telephone, the noise from moving cars and airplanes and musical instruments.

TRANSMISSION OF SOUND WAVES

Sound travels from place to place as sound waves. Sound must have a substance to travel through i.e. it does not travel through a vacuum. There is nothing in a vacuum to pass on vibrations. Sound waves are longitudinal waves i.e. the air vibrates backwards and forwards in the wave is moving.

It can travel through solids, liquids and gases. The air changes the vibration into impulses which are carried into brain for interpretation.

CHARACTERISTICS OF SOUND

A. **PITCH**

This depends on the frequency of the sound waves. If the frequency is increase, the pitch of the sound also increases.

B. **LOUDNESS**

The loudness of the sound depends on its intensity. The intensity of the sound of the wave is the rate of the flow of energy per unit area, perpendicular to the direction of the wave.

Intensity is proportional to the square of the amplitude. The greater the intensity, the louder the sound.

C. **QUALITY**

This is the property which enables us to distinguish the same note played on different instruments e.g. a piano and an organ, the quality of a musical notes depends on the harmonies. When a note is produced, the strongest, audible frequency heard is the fundamental. All other frequencies present ar harmonics or overtones.

FORCED VIBRATION

If tuning fork A is struck and stopped, you find that it will cause tuning fork B to vibrate, provided both forks have the same frequency. This is called forced vibration. Other forms off forced vibration include:

a. RESONANCE

Resonance is a special case of forced vibration which occurs when a system is made to vibrate at its own natural frequency as a result of forced vibrations received from another sources of the same frequency.

b. RESONANCE IN STRINGS

Stationary waves can occur on a stretched string or wire.. This is obtained by varying the driving frequency of the string.

CLASSWORKS 7&8

Define the following terms

1. Pitch
2. Loudness
3. Quality
4. Resonance

ASSIGNMENTS 7&8

SECTION A

1. The frequency of a stretched string has a fundamental note produced given by the relation: (a) $f_0 = \frac{V}{2l}\sqrt{\frac{T}{M}}$(b) $f_0 = \sqrt{\frac{T}{M}}$ (c) $f_0 = \frac{V}{2l}$(d) $f_0 = \frac{M}{2l}\sqrt{\frac{T}{M}}$
2. A boy standing some distance from the foot of a tall cliff claps his hands and hears an echo 0.5s later. If the speed of sound in air is 340m/s, how far is he from the cliff? (a) 17m (b) 24m (c) 85m (d) 170m

3. Which of the following is odd? (a) flute (b) trumpet (c) saxophone (d) guitar
4. Sound wave differs from water wave……(a) energy transfer is involve (b) they can be refracted and reflected (c) no transfer of the medium is involved (d)They are longitudinal wave
5. The periodic rise and fall in amplitude or loudness of the sound produced when two notes of nearly equal frequencies are sounded together is called (a) loudness (b) pitch (c) beat (d) note
6. The characteristics note which helps to identify sound from different musical instruments is called (a) quality (b) loudness (c) beat (d) overtones
7. A noise of frequency 2000Hz has a velocity of 400m/s. What is the wavelength of the noise? (a) 0.02m (b) 0.25m (c) 0.2m (d) 2m
8. A man stands 50m in front of a cliff and claps his hands and the echo is heard 0.3seconds later. Calculate the speed of sound in air in metre per seconds (a) 333 (b) 330 (c) 233 (d) 220
9. A source of sound produces waves in air if wavelength 1.65m. If the speed of sound in air is 330m/s, the period of vibration is (a) 200 (b) 0.005 (c) 0.5 (D) 0.02
10. The speed of sound traveling in various media increases in the following correct order (a) iron bar, air, water (b) air, iron bar, water (c) air, water, iron bar (d) water, iron bar, air

SECTION B

1. What is sound and how is it produced?
2. Explain the following terms: (i) echo (ii) reverberation (iii) resonance
3. A sound frequency 100Hz and wavelength 3.34m is travelling through air, calculate the velocity of sound in air

WEEK NINE

RESONANCE - VIBRATION IN PIPES AND STRING, MUSICAL INSTRUMENTS, HARMONICS AND OVERTONES

- ❖ Wind instruments
- ❖ String instruments
- ❖ Percussion instruments
- ❖ Echoes and their application

WIND INSTRUMENTS

Clarinets, flute, saxophone, trumpet are examples of wind musical instruments. A musical note originates from a source vibrating in a uniform manner with one or more constant frequencies music is a combination of musical notes. All wind instrument use resonating

air columns to produce their sounds. Sounds from wind instruments may originate from:

i. Air vibrating over an opening e.g. organ and flute
ii. The vibrating lips of a brass instrument e.g. trumpet
iii. A vibrating heel e.g. clarinet, saxophone

Some columns are of fixed length, their resonant frequencies being altered by the opening or the closing of holes in the column e.g. clarinet, a recorder, some instruments are played by altering the length the air column e.g. trumpet.

STRINGED INSTRUMENTS

The guitar, the sonometer and piano are examples of stringed musical instruments. These instruments may be set in vibration by a bow, or plucked with a finger e.g. a violin is bowed while a guitar is plucked. The frequency of a vibrating string depends on its length, the mass and the force that keeps the string taut. Stringed instruments vibrate as a whole and in loops at the same time e.g. the violin. These vibrations produce both the fundamental and overtones frequencies.

PERCUSSION INSTRUMENTS (drums, bell, talking drum)

Percussion instruments produce musical notes when they are struck or hit. They have rods, plates or membranes that vibrate when struck; for example, there are rods in bells, plates (bars) in xylophones and membrane in drums.

ECHOES AND THEIR APPLICATION

An echo is the repetition of sounds caused by the reflection of sound waves from a hard surface. Buildings, walls and cliffs are good reflector of sound.

CLASSWORK 9

Write short note on the following with two examples each

1. Percussion instruments
2. Wind instruments
3. Stringed instruments

ASSIGNMENT 9

SECTION A

1. In stringed instruments like a guitar or violin, high pitched notes are produced by strings that are (a) thick and short (b) thin and short (c) thick and long (d) thin and long
2. When the length of a vibrating string is tripled, its frequency of vibration (a) becomes three times the former value (b) becomes one-third its former value (c) becomes six times its former value (d) becomes one-sixth the former value
3. A tuning fork sounds louder when its stem is pressed against a table top than when held in air because (a) a larger mass of air is set vibrating by the table top (b) the whole table vibrates in resonance (c) the whole table has acquire a larger frequency (d) the fork and the table have the same frequency
4. What type of motion does the skin of a talking drum perform when it is being struck with drumstick? (a) random (b) rotational (c) vibratory (d) translational
5. Calculate the wavelength of a note which is one octave lower than a note of 256 Hz in a medium in which the speed of sound is 352m/s (a) 0.69m (b) 1.38m (c) 2.75m (d) 5.50m

SECTION B

Distinguish between noise and musical note

What is echo? Why is considered a nuisance?

Explain the terms; fundamental note, overtones harmonics and intensity

WEEK TEN

PRACTICALS

WEEK ELEVEN

REVISION

WEEK TWELVE

EXAMINATION