

**CHRIST KING HR. SEC. SCHOOL, KOHIMA**  
**CLASS 8**  
**SUBJECT: SCIENCE**  
**(2<sup>ND</sup> TERM 2020 CHAPTER – 8 TO 14)**

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**CHAPTER-8**  
**REACHING THE AGE OF ADOLESCENCE**

**A. Quick Check.**

**I. Choose the correct answer:**

**1. Which of the following structure secretes a specific chemical substance or substances?**

- a. Cell
- b. Gland
- c. Golgi
- d. None of these.

**Ans: (b) Gland**

**2. It regulates plasma calcium in blood**

- a. Pituitary gland
- b. Thyroid gland
- c. Parathyroid gland
- d. Adrenal gland

**Ans: (c) Parathyroid gland**

**3. Puberty in boys starts between the age of**

- a. 12 and 14
- b. 15 and 17
- c. 18 and 20
- d. 20 and 22

**Ans: (a) 12 and 14**

**4. In girls, puberty is signaled by**

- a. Mensuration
- b. Discharge
- c. Menstruation
- d. Gaining of height

**Ans: (c) Menstruation**

**5. Which of the following hormone is responsible for a frog to complete its life cycle?**

- a. Insulin
- b. Thyroxine
- c. Chloroplast
- d. Mitochondria

**Ans: (b) Thyroxine**

**II. Write 'T' for true or 'F' for false for the following sentences:**

- 1. Between the age of 15 and 20 most boys enter into puberty. (F)
- 2. Menstrual cycles occur over about 1 month. (T)
- 3. The hormone secreted by pancreas is known as Insulin. (T)
- 4. There are two small parathyroid gland embedded in the thyroid gland. (F)
- 5. Girls typically begin the process of puberty at age 15 or 16. (F)

## **B. Short answer type questions:**

### **1. What are hormones?**

Ans:- Hormones are chemical substances secreted by endocrine gland.

### **2. What is the age at which puberty starts in boys and girls?**

Ans:- Puberty in boys starts between the age of 12 and 14. For girls it starts between the ages of 10 to 11.

### **3. Name the gland which produces three active hormones.**

Ans:- Thyroid gland.

### **4. Which gland secretes Insulin?**

Ans:- Pancreas.

## **C. Short answer type questions II:**

### **1. Define adolescence.**

Ans:- The state where someone is in between puberty and adulthood is called adolescence.

### **2. What do you mean by puberty?**

Ans:- Puberty means the time of life when the sex glands become functional.

### **3. What is the function of thyroid gland?**

Ans:- The function of Thyroid gland is to regulate metabolic rate, development and regulation of calcium level in blood.

### **4. Define the role of hormones in the life of frogs.**

Ans:- The life cycle of a frog consist of three stages: egg, larva and adult. As the frog grows, it moves through these stages in a process known as metamorphosis. During metamorphosis, two hormones (prolactin and thyroxine) control the transformation from egg to larva and adult.

### **5. What are the simple methods of taking care of health during the period of puberty?**

Ans:- The simple methods of taking care of health during the period of puberty are:

- a. Coconut water and fresh juice will improve immunity and also provide vital vitamins.
- b. Egg or chicken sandwich is better option while meeting with friends or after exercise or swimming.
- c. Breakfast is the most important meal, as it ensures minimum brain damage due to an overnight fast.
- d. A water intake of three-four litres per day clears the toxins from the body and keeps the skin healthy and glowing.
- e. Fish, Chicken, egg are good sources of proteins which help in growth and repair of worn out tissues.

## **D. Long answer type questions:**

### **1. Explain endocrine system.**

Ans:- The endocrine system is made up of a number of glands called endocrine glands. The endocrine system in association with the nervous system maintains a haemostatic state within the body. Hypothalamus in the brain is the link between these two systems. The endocrine system plays a role of coordination of control of many of the major physiological activities of organisms.

### **2. What is menstruation cycle? Explain it with diagram.**

Ans:- A recurring cycle in which the endometrial lining of the uterus prepare for pregnancy is called menstruation cycle. **(Diagram refer your text book. Fig: 8.4)**

**3. What are the changes that occur in a boy's body during the age of puberty?**

Ans:- The changes that occur in a boy's body during the age of puberty are:

- a. Faster growth especially height.
- b. Increased shoulder width.
- c. Body and facial hair.
- d. Voice changes.
- e. Body odor and acne.

**4. What happens in a girl's body during the period of puberty?**

Ans:-

- i. Breast development.
- ii. Beginning of the menstrual cycle.
- iii. Before the first menstrual period, a girl will have
  - a. An increase in height.
  - b. An increase in hip size.
  - c. Clear or whitish vaginal secretion.
  - d. Pubic, armpit and leg hair growth.

## **CHAPTER-9 REPRODUCTION**

**A. Quick Check.**

**I. Choose the correct answer:**

**1. A hormone only secreted in a female body**

- a. Progesterone
- b. Testosterone
- c. Thyroxine
- d. Adrenalin

**Ans: (a) Progesterone**

**2. The stage when the reproductive organ reach sexual maturity is called**

- a. Puberty
- b. Menstruation
- c. Gestation
- d. Fertilization

**Ans: (a) Puberty**

**3. Sperm are formed in the**

- a. Testes
- b. Vas deferens
- c. Penis
- d. Any one of the these

**Ans: (a) Testes**

**4. After fertilization, the human embryo grows inside the**

- a. Uterus
- b. Ovary
- c. Fallopian Tube
- d. Vagina

**Ans: (a) Uterus**

5. If fertilization doesn't occur, the ovum is released out of

- a. Uterus
- b. Menstrual Cycle
- c. Fallopian Tube
- d. Zygote

Ans: (b) Menstrual Cycle

6. The fusion of male and female gametes usually takes place inside the

- a. Uterus
- b. Ovary
- c. Fallopian Tube
- d. Vagina

Ans: (c) Fallopian Tube

7. The organ that helps to release sperms in a female body is

- a. Testes
- b. Vas Deferens
- c. Penis
- d. None of these

Ans: (c) Penis

8. The cell formed after fertilization is called a

- a. Foetus
- b. Embryo
- c. Zygote
- d. None of these

Ans: (c) Zygote

## II. Fill in the blanks.

1. Chemicals secreted by endocrine glands are called hormones.
2. The adrenal gland is called the gland of emergency.
3. Human beings reproduce by sexual reproduction.
4. Beard or a moustache is a sign of secondary sexual character.
5. Puberty refers to the stage of maturation of the reproductive organ.
6. The process by which the male and female gametes fuse together is called fertilization
7. The vas deferens is a male reproductive organ.
8. The placenta is a disc-like structure which helps in the transfer of substances to and from the foetus body.

## B. Short answer type questions I:

1. Define reproduction.

Ans:- The process by which living beings produce offspring of their own kind is called reproduction.

2. Name the male and female reproductive organs.

Ans:- The male reproductive organs are the testes, Penis, Vas deferens and Urethra. Whereas the female reproductive organs are Ovary, Fallopian tubes, Uterus and Vagina.

3. What is an ovum?

Ans:- The female reproductive cells or gamete is called ovum.

4. Name the viviparous and oviparous animals.

Ans:- The viviparous animals are Dogs and Cows. Whereas the Oviparous animals are amphibians and reptiles.

### C. Short answer type questions II:

#### 1. Define reproduction. Mention two main types of reproduction in animals with examples.

Ans:- The process by which living being produce offspring of their own kind is called reproduction.

The two types of reproduction in animals are:

- a. Asexual reproduction: Production of offspring by a single parent without the formation of gametes is called asexual reproduction.  
E.g. hydra, amoeba etc.
- b. Sexual reproduction: Production of offspring by two parents with the formation of gametes is called sexual reproduction.  
E.g. Human being etc.

#### 2. What do you understand by the term fertilization?

Ans:- The fusion of male and female gametes leading to the formation of zygote is called fertilization.

#### 3. Differentiate between viviparous animals and oviparous animals.

Ans:- Viviparous animals are those that give birth to young ones.

E.g. Cows, Dogs etc.

Whereas, oviparous animals are those that lay eggs.

E.g. Fish, Frogs, Birds etc.

#### 4. Describe the life cycle of a frog in short.

Ans:- The lifecycle of a frog consist of three stages:

Egg, Larva and adult. The process that transforms a frog from egg to an adult frog is called metamorphosis. This metamorphosis is also known as the frog's life cycle.

### D. Long answer type questions:

#### 2. Describe the reproductive organs in a male with the help of a labeled diagram.

Ans:- (a). Testes or testicle is an endocrine gland. It is made up of numerous coiled tubes which produce sperm cells. When a body reaches puberty, the testes are stimulated by the pituitary gland to produce the male sex hormone testosterone.

(b). Vas deferens is a narrow duct which helps to transport sperms from the testes.

(c). The penis transfer the semen and with it the sperms, into the female body.

(d). An organ called urethra is present inside the penis. Vas deferens carries sperms and opens in the urethra. **(Diagram refer your text book. Fig: 9.6)**

#### 3. Discuss the main organs of the female reproductive system, giving one function of each.

Ans:- (a). Ovary is an endocrine gland. There are two ovaries in a female body.

(b). Fallopian tubes are the tubes that carry the ovum released by the ovary for fertilization. These are also known as the oviducts.

(c). Uterus is the organ where the zygote matures and grow till it is ready to be born. The embryo (the developing body) grows and develops inside the uterus, which is also called the womb.

(d). Vagina receive the penis during sexual intercourse.

**(Diagram refer your text book. Fig: 9.7)**

#### 4. With the help of a schematic diagram, explain how chromosomes determine the sex of the body.

Ans:- Human cells contain 23 pairs of chromosomes for a total of 46. There are 22 pairs of autosomes and one pair of sex chromosomes. The sex chromosomes are the X chromosomes and the Y chromosomes. **(Diagram refer your text book. Fig: 9.10)**

During the formation of gametes, the females will have only one type of gametes, all with one X chromosomes. However, the male will produce two types of gametes or sperms, half with X chromosome and half with Y chromosome. Thus, the sex of a zygote is determined by which male gametes fuses with the female gamete. **(Diagram refer your text book. Fig: 9.11)**

**5. What is fertilization? Describe the two types of fertilization.**

Ans:- The fusion of male and female gamete leading to the formation of zygote is called fertilization.

The two types of fertilization are:

(a). External fertilization: If the fusion of male and female gametes takes place outside the body, it is known as external fertilization.

E.g. Fish, frog etc.

(b). Internal fertilization: If the fusion of male and female gametes takes place inside the body it is known as internal fertilization.

E.g. Human beings, dogs etc.

**6. What is spawning? Give an example.**

Ans:- The process of releasing sperm and egg into water is called spawning.

E.g. fish lay eggs by spawning.

## CHAPTER 10 FORCE

**A. Quick check:**

**I. Choose the correct answer.**

**1. The force exerted by one object on another by virtue of their masses is**

- a. Magnetic force
- b. Frictional force
- c. Electrostatic force
- d. Gravitational force

**Ans:- (d). Gravitational force**

**2. The standard unit of force is**

- a. Newton
- b. Metre/second
- c. Metre/second<sup>2</sup>
- d. Gram/weight

**Ans:- (a). Newton**

**3. Force applied on a body can change its**

- a. Speed
- b. Shape
- c. Direction of motion
- d. All of the above

**Ans:- (d) All of the above**

**4. Force that arises due to attraction or repulsion of electronic charge is called**

- a. Gravitational force
- b. Magnetic force
- c. Electrostatic force
- d. Frictional force

**Ans:- (c). Electrostatic force**

**5. The SI unit of mass is**

- a. Kg
- b. Kg wt
- c. Newton
- d. Metre

**Ans:- (a). Kg**

**6. The pull of the earth is a force called**

- a. Muscular force
- b. Gravitational force
- c. Kilogram force
- d. Frictional force

**Ans:- (b). Gravitational force**

**7. Weight of a body is maximum at the**

- a. Poles
- b. Equator
- c. Centre of the earth
- d. Axis

**Ans:- (a). Poles**

**8. 1 kg wt equals**

- a. 9.8N
- b. 98N
- c. 980N
- d. 1000g

**Ans:- (a). 9.8N**

**II. State (T) for true and (F) for false for the following sentences.**

- 1. Magnetic force is a contact force. **(F)**
- 2. Only the earth exerts gravitational force on all objects. **(F)**
- 3. Friction causes wastage of energy. **(T)**
- 4. All pushes and pulls are force. **(T)**
- 5. A force can make an object start moving in a different direction. **(T)**

**III. Match the following columns:**

**Column A**

- 1. SI unit of force
- 2. Spring balance
- 3. Quantity of matter in a body
- 4. Force opposing the motion
- 5. Force exerted by muscles

**Column B**

- a. Mass **(3)**
- b. Friction **(4)**
- c. Muscular force **(5)**
- d. Weight **(2)**
- e. Newton **(1)**

**B. Short Answer Type Question:**

**1. What is force?**

Ans:- A force is defined as a push or pull that causes some kind of movement in an object.

**2. Name the three effects of force?**

Ans:- The three effects of force are acceleration, deceleration and direction.

**3. What is the standard unit of force?**

Ans:- Newton (N).

**4. Define friction?**

Ans:- Friction are types of forces in which the two interacting objects are physically contacting each other.

**5. What do you understand by 'contact force'? Give an example.**

Ans:- The force that act by direct contact are called contact force. E.g. pushing door to open.

**6. What are the different types of force?**

Ans:- Contact force and non-contact force.

### 7. What is the main use of a spring balance?

Ans:- The spring balance is a weighing scale commonly used to weight objects at home or at shop.

### C. Short answer type Question II:

#### 1. Write the main effect of force.

Ans:- The main effect of force are.

- i. **Acceleration:** a force that can make an object go faster.
- ii. **Deceleration:** a force that can make an object go slow.
- iii. **Direction:** a force that can make an object start moving in a different direction.

#### 2. Explain the force due to which apple fall from the tree?

Ans:- The force due to which apple fall from the tree is gravitational force. This force acts at a distance and attract bodies of matter towards each other.

#### 3. Distinguish between electrostatic and magnetic forces?

Ans:- Electrostatic force is a force of attraction or repulsion between two particles or object because of electric charge. Whereas magnetic force is the force of attraction or repulsion that arises between electrically charged particles because of their motion.

#### 4. How does lubrication reduce friction?

Ans:- The lubrication separates the two surfaces by creating a thin film between two surfaces. Thus majorly, reducing the irregularities and consequent friction.

#### 5. Why does friction occur when two surface are in contact?

Ans:- When two surface are in contact, friction occur due to irregularities in the surface of the two objects.

### D. Long answer type question.

#### 1. Explain the basic principle of gravitational force. How will you measure it? Write its SI unit.

Ans:- The universal law of gravitation states that the force of gravity between two object is proportional to the product of the masses of the objects and inversely proportional to the square of the distance between them.

It can be measure using the formula-

$$F = \frac{GMm}{r^2}$$

Its SI unit is  $\text{NM}^2\text{kg}^{-2}$

#### 2. Differentiate between muscular force and gravitational force?

Ans:- The force exerted by the muscle on the body is called muscular force. It is a contact force whereas gravitational force is a force that acts as a distance and attracts bodies of matter towards each other. It is an un-contact force.

#### 3. When we rub a comb with our hair, it attracts the bits of paper why?

Ans:- When we rub a comb with our hair it attract the bits of paper because the comb gets electrically charged when rubbed with our hair.

#### 4. How can you show that magnetic force can easily pass through a sheet of paper?

Ans:- Aim: To prove that magnetic force can easily pass through a sheet of paper. Materials required: A piece of iron or iron nails, a sheet of paper and magnet. Method: place the iron nails above the sheet of paper. Move the magnet under the sheet of paper. You will see that iron nails will follow the movement of the magnet. Conclusion: object of iron or steel moves towards the magnet due to the force of magnet acted upon it and the magnetic forces can be easily passed through sheet of paper.

## CHAPTER-11 FRICTION

### A. Quick Check.

#### I. Choose the correct answer:

1. S.I unit of force of friction is

- (a). N
- (b). Kgw
- (c). Kgms<sup>-2</sup>

**Answer: (a)**

2. Ball bearings are used to

- (a). increase friction
- (b). decrease friction
- (c). optimize friction

**Answer: (b)**

3. The use of lubricants make the surface

- (a). smooth
- (b). rough
- (c). very rough

**Answer: (a)**

4. The friction \_\_\_\_\_ with the \_\_\_\_\_ is roughness of the surface

- (a). increase, increase
- (b). decrease, decrease
- (c). decrease, increase

**Answer: (a)**

5. The maximum force of friction when the body is just beginning to move is known as the

- (a). limiting friction
- (b). rolling friction
- (c). static friction

**Answer: (a)**

6. The friction that exist between a surface sliding on another surface is called the

- (a). dynamic friction
- (b). rolling friction
- (c). static friction.

**Answer: (a)**

#### II. State (T) for true or (F) for false for the following sentences:

- 1. Limiting friction is directly proportional to the normal reaction. (F)
- 2. The use of lubricants makes the surface smooth. (T)
- 3. Limiting friction is independent to the area of contact. (T)
- 4. Static friction is less than rolling friction. (F)
- 5. S.I. unit of force of friction is Kgw. (F)

#### III. Match the Columns:

##### Column- A

- 1. Friction
- 2. Rubber
- 3. Water
- 4. Meteors
- 5. Fluid friction

##### Column-B

- a. Shooting star (4)
- b. water flowing through a hose (5)
- c. less friction (3)
- d. resistance force (1)
- e. friction cause by molecular attraction. (2)

## B. Short answer type questions I:

### 1. Define force of friction.

Ans:- The force acting along the two surfaces in contact which opposes the motion of one body over the other is called force of friction.

### 2. How does frictional force vary with change in roughness of the surfaces?

Ans:- The rougher the surface, the more the friction.

### 3. What do you mean by limiting friction?

Ans:- The maximum static force of friction which come into play when one body just slides upon another body is called limiting friction.

### 4. What is rolling friction?

Ans:- Rolling friction can be defined as the friction experience by a body when it is made to roll over another body.

## C. Short answer type questions II:

### 1. What do you mean by friction? Briefly explain the origin.

Ans:- The force acting along the two surfaces in contact which opposes the motion of one body over the other is called friction. It is caused by the surface roughness area of the material, deformation or molecular attraction.

### 2. Is friction a self-adjusting force? Give two disadvantages of friction.

Ans:- Yes, friction is a self-adjusting force. Two disadvantages are:

- a. Excess of friction can make it difficult to slide a box across the floor and ride a bicycle or walk through deep snow.
- b. An automobile would not move forward very well unless its friction was not reduced.

### 3. With the help of examples, prove that friction is a necessary evil.

Ans:- (a). Writing: Writing with a pencil requires friction without friction we will not be able to hold the pencil. The graphite pencil led would not make a mark on the paper without friction.

(b). The force of friction holds the nails and screws in the wood and other materials making possible to build anything.

(c). We see metallic treads on heavy vehicles like tank, these treads provide the high friction required to move such a heavy vehicle. This is also true for other heavy machinery.

## D. Long answer type questions:

### 1. How many types of friction have you come across? Define them. Is the effect of rolling friction more than dynamic friction?

Ans:- Five.

- a. Static friction: Static friction occurs when two objects do not move relative to each other.
- b. Dynamic friction: Dynamic friction occur when two objects are moving relative to each other and rub together like ski slides on ice.
- c. Fluid friction: Fluid friction is the friction between a solid object as it moves through a liquid or a gas.
- d. Limiting friction: The maximum static friction of force which is called into play when one body just slides upon another body is called limiting friction.
- e. Rolling friction: Rolling friction can be defined as a friction experienced by a body when it is made to roll over another body. No, the effect of rolling friction is less than dynamic friction.

### 2. State and explain the laws of friction.

Ans:- The laws of limiting friction are:

- a. Limiting friction is always opposite to the direction and motion of a body.
- b. Limiting friction depends upon the nature of the surface in contact with each other.
- c. Limiting friction increases with the increase in the weight of the body.
- d. Limiting friction is independent of the area of the surfaces in contact provided the weight of the body and nature of the surfaces in contact does not change.

**3. What is frictional force? Suggest and briefly explain three methods by which friction can be minimized.**

Ans:- The force acting along the two surfaces in contact which opposes the motion of one body over the other is called force of friction. Three methods by which friction can be minimized are:

- a. Lubrication: A common way to reduce friction is by using a lubricant, such as oil, that is placed between the two surfaces. Often dramatically lessening the co-efficient of friction.
- b. Streamlining: Streamlining gives the transport of a shape that moves more easily through air or water. It is a pointed nose or bow and smooth side, which do not push strongly against air or water.
- c. Surface characteristics modification: You can reduce the friction by improving the surface characteristics or texture of the solid object by method of polishing.

## **CHAPTER 12 PRESSURE**

### **A. QUICK CHECK:**

#### **I. Chose the correct answer.**

**1. Pascal is used as a unit for.**

- a. Thrust
- b. Weight
- c. Pressure
- d. Force

**Ans:- c. Pressure**

**2. S.I unit of pressure is**

- a. N
- b. Kgm<sup>3</sup>
- c. N/m<sup>2</sup>
- d. Kgm<sup>5</sup>

**Ans:- a. N**

**3. 1pa equals**

- a. 10Nm<sup>2</sup>
- b. 1N/m<sup>2</sup>
- c. 1/10Nm<sup>2</sup>
- d. 100Nm<sup>2</sup>

**Ans:- b. 1N/m<sup>2</sup>**

**4. The unit of pressure use for meteorological purpose is called**

- a. Bar
- b. Pascal
- c. kgwt
- d. Newton

**Ans:- a. Bar**

**5. At high altitudes the air pressure (as compared to pressure on the surface of the earth) is**

- a. Lesser
- b. More
- c. Same
- d. None of the above

**Ans:- a. Lesser**

**6. The pressure in a liquid at greater depth is**

- a. Smaller
- b. Greater
- c. Same
- d. Lesser

**Ans:- b. Greater**

**7. The pressure at any point in a liquid at rest depends only on the depth and on the -----of the liquid**

- a. Density
- b. Weight
- c. Colour
- d. Volume

**Ans:- a. Density.**

**8. At sea level, atmospheric pressure is about**

- a. 103Pa
- b. 104Pa
- c. 105Pa
- d. 102Pa

**Ans:- b. 104Pa**

**II. State (T) for true or (F) for false for the following sentence.**

- 1. The force acting on a given surface is called pressure. (T)
- 2. The total force acting on a given surface is called thrust. (T)
- 3. Density is mass per unit volume of a substance. (T)
- 4. Pressure in a liquid at greater depths is greater. (T)
- 5. Pressure in a volume at the same depth is the same in all direction. (T)

**III. Match the columns**

**Column A**

- 1. Pressure (S.I unit)
- 2. Force
- 3. Density (S.I unit)
- 4. Kilogram force
- 5. Acceleration

**Column B**

- a. kgwt (4)
- b. m/s<sup>2</sup> (5)
- c. N (2)
- d. N/m<sup>2</sup> (1)
- e. kg/m<sup>3</sup> (3)

**B. Short answer type question II**

**1. Define pressure?**

Ans:- Pressure is define as the force acting per unit area of the surface.

**2. Write the S.I unit of pressure?**

Ans:- Pascal (Pa)

**3. What is a manometer?**

Ans:- Manometer is a simple pressure gauge that measures difference in pressure exerted at the two ends of the apparatus.

**4. What is an atmospheric pressure at sea level?**

Ans:- Atmospheric pressure at sea level is about 100 kilo Pascal.

**5. Write the S.I unit of density?**

Ans:- The S.I unit of density is kg/m<sup>3</sup>.

**6. What do you mean by pressure at a point?**

Ans:- The pressure at a point is the perpendicular force acting per unit area.

**7. What is the use of Barometer?**

Ans:- Barometer is used for measuring the atmospheric pressure.

**C. Short answer type question II**

**1. Distinguish between thrust and pressure. Write their units. What is the rotation between them?**

Ans:- Thrust is a total force in a particular direction. Its S.I unit is Newton (N). Whereas pressure is the force acting per unit area of the surface. Its S.I unit is Pascal (Pa).

**2. What are the factors on which the pressure of a liquid depends?**

Ans:- Pressure of the liquid depend on the height of the liquid and density of the liquid.

**3. Why are nails made very thin at one end and thick on the other end?**

Ans:- Nail are thick at one end and thin on the other end so that the thin end concentrate the force applied on the thicker end into a smaller area.

**D. Long answer type question.**

**1. What do you mean by atmospheric pressure?**

Ans:- The pressure exerted by the layer of air around the air is called atmospheric pressure. Atmospheric pressure is a direct result of the weight in air.

**2. Why does a fountain pen start leaking at higher altitude?**

Ans:- A fountain pen start leaking at higher altitude because of the difference in the air pressure. As the air pressure is less on the ground, the ink flows quicker and there is no leak bet in the higher altitude, the due to pressure could not keep up with the flow from the cartridge and thus leak.

**3. Describe any four example of pressure?**

Ans:- Any four example of pressure are:

- a. A harmer can pressed against a wall without making any permanent impression; however the same harmer pushing a nail can easily damage the wall.
- b. When the area is small, a small force can create a very large pressure that is why, a sharp knife is good at cutting things. When you push the very small area of the sharp blade against something it creates a really large pressure.
- c. During skating your weight creates a very large pressure on the ice which melts a thin layer of ice.
- d. The armored tanks have treads on which they move. As the tanks are very heavy, their threads reduce the pressure on the ground and they can move easily.

**CHAPTER - 13**  
**SOUND**

**A. Quick Check:**

**I. Choose the correct answer:**

**1. The amplitude of the sound wave decides its**

- |            |              |
|------------|--------------|
| a) Speed   | b). Loudness |
| c). Source | e). Pitch    |

**Ans: Loudness**

**2. The real organ of hearing in the human ear is the**

- |                 |                      |
|-----------------|----------------------|
| a) Ear drum     | b) Cochlea           |
| c). Oval window | d). The 3 soft bones |

**Ans: Ear Drum**

**3. Sound of waves travel fastest in**

- a). air
- b). Vacuum
- c). Metals
- e). Liquids

**Ans: Metals**

**4. The minimum distance required to the produce a distinct echo is**

- a). 15m
- b). 10m
- b). 11m
- e). 17m

**Ans: 17m**

**II. State 'T' for True or 'F' for False for the following:**

- 1. 1 hertz means 1 vibration per second. **F**
- 2. Excessive noise and cause deafness. **T**
- 3. Sound cannot travel through vacuum. **T**
- 4. A smooth plaster wall is a bad reflection of sound. **T**
- 5. The loudness of a sound depends on its frequency. **F**
- 6. Sound with frequency about 20.000 Hz is called infrasonic. **F**

**III. Match the columns:**

*Column A*

- 1. Low frequency which we cannot hear
- 2. Instrument producing sound of single frequency
- 3. Unit of frequency
- 4. Maximum displacement of an oscillating object
- 5. Sound with a frequency of more than 20,000 Hz

*column B*

- a) Hertz **3**
- b) Tuning fork **2**
- c) Infrasonic **1**
- d) Amplitude **4**
- e) Ultrasonic **5**

**B. Short answer type question 1:**

**1. What is mean by an oscillation?**

**Ans:** The movement of a body from one extreme position to the other and back is called an oscillation.

**2. What is mean by frequency of a sound wave?**

**Ans:** The number of vibration produced per second is known frequency of a sound wave.

**3. Define the term vibration.**

**Ans:** To and from movements or the oscillatory motion of a body which may produce sound is called vibration.

**4. What is an echo?**

**Ans:** The sound hears after the reflection from a surface is called an echo.

**5. What is ultrasonic?**

**Ans:** The sound frequency greater than 20,000 Hz is called ultrasonic.

**6. What is noise pollution?**

**Ans:** Loud, annoying, repetitive or spasmodic sound in our surrounding which is harmful to us is known as noise pollution.

**C. Short answer type question:**

**1. How is frequency of a sound wave related to its time period?**

**Ans:** Time period and sound wave are inverses of each other. Period is the time it takes for one complete cycle of a wave and frequency is the number of cycles of the wave that place in a unit of time.

**2. Give an example to show that light travels faster than sound.**

**Ans:** During thunderstorm, we see the flash of light and then hear the sound of thunder several second afterwards.

**3. Name one use of echo sounding.**

**Ans:** it is used to determine the depth of water in ocean (SONAR).

**4. How far from a sound reflecting surface a listener should be hear an echo?**

**Ans:** To hear an echo, a listener should be 17m away from a sound reflecting surface.

**5. On what factor does the loudness of the sound depends?**

**Ans:** loudness of a sound depends on the amplitude of vibration.

**6. How does noise affect the health of a person?**

**Ans:** Noise pollution affects our hearing. Constant noise can cause gradual hearing loss. Noise pollution also increases blood pressure and heart problem.

**7. Define amplitude of vibration.**

**Ans:** The maximum displacement of a vibrating body from its mean position on either side of the mean position is called its amplitude.

**D. Long Answer Type Questions.**

**1. With the help of the diagram discuss the following terms.**

**Ans: (Diagram refer your text book. Fig: 13.2)**

- a). Amplitude: the maximum displacement of a vibrating body from the mean position on either side of the mean position is called it's amplitude.
- b). Time Period: Time taken to complete one oscillation is called it's time period.
- c). Frequency: The number of oscillation per second of a body is called the frequency of oscillation.

**2. Draw a Labeled diagram of human ear, explaining how the energy of the sound wave is transmitted.**

**Ans: (Diagram refer your text book. Fig: 13.6)**

The human ear is a very delicate and complex organ system which helps us to hear a range of sounds. The sound vibration reaches the ear drum and makes it vibrate.

This in turn makes a series of small bones vibrate. Inside the inner ear, the vibration of sound energy are converted to electrical energy which are nerves detects the matter from the quality of sound.

**3. What are echoes and how are they produced?**

**Ans:** the sound which is received after reflection from far off object is called echo. They are produced as a result of reflection of sound from a hard surface.

**4. What are the uses of sound?**

- Ans:**
- a). Seeds exposed to ultrasonic frequencies have been found to germinate quickly.
  - b). We used sound mainly to communicate with each other.
  - c). Ultrasonic are used in the fields of engineering, industry diagnostic, medicine, surgery etc.
  - d). Infrasonic are used is drilling deep oil wells.

## 5. What is noise pollution and what are the hazards of noise pollution.

**Ans:** Noise pollution is loud, annoying repetitive or spasmodic sounds. These can damage hearing and interfere with normal life. Noise pollution affects our hearing. Constant noise can cause gradual hearing loss. Noise pollution also increase nervous tension and can lead to high blood pressure and heard problem.

## CHAPTER-14 ELECTRIC CURRENT AND CIRCUIT

### A. Quick Check.

#### I. Choose the correct answer:

1. In an electrolytic cell, the electrode that is connected to the positive terminal of the battery is called

- (a). cation
- (b). cathode
- (c). anion
- (d). anode

**Answer: (d)**

2. The process by which a chemical change takes place in a substance when electric current is passed through is called

- (a). Electrolysis
- (b). Electroplating
- (c). Electrodes
- (d). Thermionic conduction

**Answer: (a)**

3. An electrolyte is

- (a). A light electric cell
- (b). A liquid that conducts electricity
- (c). A metal
- (d). None of the above

**Answer: (b)**

4. Adding a soluble salt to water

- (a). Increases its electrical conductivity
- (b). decreases its electrical conductivity
- (c). coating any object with an electrically conducting plate
- (d). coating a metal with another metal by passing an electric current

**Answer: (a)**

5. Electroplating is a method of

- (a). making plates using electricity
- (b). plating a metal with another metal
- (c). coating any object with an electrically conducting plate
- (d). coating a metal with another metal by passing electric current

**Answer: (b)**

#### II. Fill in the blanks.

1. Water mixed with salts is a **good** conductor of electricity.
2. For electricity to flow in a medium, we need **freely moving electrical** charges in the medium.
3. Impurities in water generally **increase** its conductivity.
4. In liquid, electrical conductivity is generally due to **certain impurities**.
5. Cations carry **positive** charge.

6. Anions are attracted to the **anode**.
7.  $\text{Na}^+$  is a **conductor**.
8. The branch of science that deals with the interrelation between chemical phenomena and electricity is called **electrolysis**.
9. The method of coating a metal with a layer of another metal using electric current is called **electroplating**.
10. **Electrical conductivity** is a measure of the ability of a substance to carry electric current.

#### **B. Short answer type questions I:**

##### **1. What is electrochemistry?**

**Ans:-** The branch of chemistry that deals with the relation between electrical and chemical phenomena is called electrochemistry.

##### **2. Why is it more dangerous to touch an electric appliance with wet hands than with dry hands?**

**Ans:-** It is more dangerous to touch an electric appliance with wet hands than with dry hand because the water we use in our houses is not pure. It has many impurities which makes it a good conductor of electricity.

##### **3. Why do we get electric shocks?**

**Ans:-** We get electric shocks while touching electrical appliance because the electron get transferred through us.

##### **4. What is an electrolytic cell? Give an example?**

**Ans:-** Electrolytic cell is an arrangement used for carrying out the process of electrolysis.  
E.g. Electrolysis of copper sulphate solution.

#### **C. Short answer type questions II:**

##### **1. Explain with the help of diagram what happens to a solution of sodium chloride in water when an electric current is passed through it.**

**Ans:-** Suppose we dissolve a small quantity of common salt (sodium chloride  $\text{NaCl}$ ) in pure water, when salt is dissolved in water, it forms ions of sodium and chloride. Now, if we take the salt solution in a beaker and set it up as shown in fig, an electric current will flow in the circuit.

**(Diagram refer your text book. Fig: 14.6)**

##### **2. What is electrolysis? How is it useful in industry?**

**Ans:-** A production of a chemical reaction by passing an electric current through an electrolyte is called electrolysis. The uses of electrolysis are:

(a). The method of electrolysis is used in industry for the production of many metals and non-metals such as aluminum, magnesium, chlorine and fluorine.

(b). Electrolysis is also employed to coat one metal with another. This process is called electroplating.

(c). The method of electrolysis is used for the purification of impure metals. This process is called electro refining.

##### **3. What are cation and anions? Give example of each.**

**Ans:-** Positively charged ions that are attracted to the cathode are called Cations. E.g. Hydrogen  
Negatively charged ions that are attracted to the anode are called anions. E.g. Oxide.

#### **D. Long answer type questions:**

##### **1. What is an electrolyte?**

**Ans:-** A liquid that conducts electricity because of the presence of ions are called electrolyte.

**2. Give one example each of a liquid that is a good conductor of electricity and a liquid that is poor conductor of electricity.**

**Ans:-** Liquid which is a good conductor of electricity is Lemon juice. Liquid which are bad conductors of electricity is pure water.

**3. What is electroplating?**

**Ans:-** The method of coating one metal with another using an electrical current is called electroplating.

**4. Mention any three uses of electroplating?**

**Ans:-** Three uses of electroplating are:

**(a). Decoration:** Metals used for making jewellery, like Gold and Silver are very expensive. In order to reduce the cost, cheaper metals are used to make jewellery, and then coated with gold or silver.

**(b). Protection:** Metals that corrode easily are given a protective coating with a metal that has a lower tendency to corrode.

**(c).** Electroplating is used in the manufacture of printed circuit boards which are used in many appliances like radios, T.V., computer etc.

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