

## Group 'B'

**1. How much is 1 part out of 100 parts of 1 second?**

One part out of 100 parts of one second is **0.01 second**.

**2. Who constructed NepalSAT-1?**

Avash Maskey and Hariram Shrestha constructed NepalSAT-1.

**3. Write one difference between bacteria and paramecium.**

Bacteria are **prokaryotic organisms**, whereas paramecium is a **eukaryotic organism**.

**4. Write one advantage of the study of fossils.**

The study of fossils helps us to know about the **history of life and extinct organisms**.

**5. Differentiate between sensory nerve and motor nerve.**

Sensory nerves carry impulses from **sense organs to the brain**, whereas motor nerves carry impulses from the **brain to muscles or glands**.

**6. Define ecosystem.**

An ecosystem is a **community of living organisms interacting with their non-living environment**.

**7. Why is wind energy called a renewable source of energy?**

Wind energy is called a renewable source of energy because it is **naturally replenished and does not get exhausted**.

**8. Write down the relation among speed of sound, frequency and wavelength.**

$$V = f\lambda$$

The relation shows that the speed of sound equals the product of frequency and wavelength.

**9. Write one difference between electron and neutron.**

An electron has a **negative charge**, whereas a neutron has **no charge**.

Group C

**1. Define input work and output work.**

**Input work** is the work done on a machine by applying effort.

**Output work** is the work done by a machine on the load.

**2 . Convert One light year into metre.**

One light year is the distance travelled by light in one year.

Speed of light =  $3 \times 10^8$  m/s

Time in one year =  $365 \times 24 \times 60 \times 60 = 3.15 \times 10^7$  s

Distance = Speed  $\times$  Time

=  $(3 \times 10^8) \times (3.15 \times 10^7)$

=  $9.45 \times 10^{15}$  metres

**Therefore, one light year equals  $9.45 \times 10^{15}$  metres.**

**Mention any two disadvantages of chemical fertilizers.**

- Chemical fertilizers reduce soil fertility when used excessively.
- Chemical fertilizers can cause water pollution by mixing with rivers and groundwater.

**Write any two differences between central nervous system and peripheral nervous system.**

- The **central nervous system** consists of the brain and spinal cord, whereas the **peripheral nervous system** consists of nerves outside the brain and spinal cord.
- The **central nervous system** controls and processes information, whereas the **peripheral nervous system** carries messages between the body and the central nervous system.

## Group D

### 1a. What is meant by conventional direction of electricity flow?

The **conventional direction of electricity flow** is the direction in which electric current flows from the **positive terminal to the negative terminal** of a battery in a circuit.

### 1b. Write any two differences between potential difference and electromotive force.

1. **Potential difference** is the work done to move a unit charge between two points in a circuit, whereas **electromotive force (EMF)** is the work done to move a unit charge around the whole circuit by a source.
2. **Potential difference** is measured between any two points of a circuit, whereas **electromotive force** is measured across the terminals of a cell or battery when no current flows.