

Meghalaya Board
Class IX
Science and Technology
Sample Paper 1

Time allowed: 3 hours

Maximum Marks: 80

General Instructions:

1. Write all the answers in the Answer Script.
2. Attempt all parts of a Group serially in one place.
3. The figures in the margin indicate full marks for the questions.
4. This question paper comprises of three sections A, B and C.
5. The candidates are advised to attempt all the questions of sections A, B and C separately.
6. Marks allocated to every question are indicated against it.

SECTION- A

(PHYSICS)

(Marks- 26)

Answer the following very short answer type questions in one sentence each:

1 X 4=4

- 1) Do the medium particles have permanent displacement in wave motion? **1**
- 2) Define 1 Joule of work. **1**
- 3) State the relationship between the buoyant force on an object and the weight of the liquid displaced by it. **1**
- 4) A book is placed on a table. Find the action and reaction force in this case. **1**

Answer the following very short answer type questions in 20-30 words each:

2 X 4=8

- 5) An object moving in a certain direction with acceleration in the perpendicular direction. Is this situation possible? Give an example of such situation. **2**
- 6) Distinguish between average speed and average velocity. **2**
- 7) 1 kg sheet of tin sinks in water but if the same sheet is converted into a box or boat, it floats. Give reason. **2**
- 8) A car from rest moves with a uniform acceleration of 2 m/s^2 for 10 minutes. Calculate the acquired speed and the distance travelled in this time. **2**

Answer the following short answer type questions in 30-40 words each:

3 X 3=9

- 9) Although a stone and the Earth attract each other with equal force, why do we observe that only the stone falls towards the Earth but not the Earth rising towards the stone? Explain. **3**
- 10) Distinguish between longitudinal and transverse waves. Give one example each. **3**
- 11) A wooden cuboid has mass 8 kg. The length, breadth and height of this wooden cuboid are 100cm, 50cm and 20 cm respectively. Find the pressure on the floors on which this block is kept. **(2+1)=3**

Or

Calculate the force of gravitation due to the Earth on a ball of 2 kg mass lying on the floor. Consider the mass of Earth = 6×10^{24} kg, radius of Earth = 6400 km and universal gravitation constant $G = 6.7 \times 10^{-11} \text{ Nm}^2/\text{kg}^2$.

Answer the following long answer type question in 50-60 words each: 5

12)

- (a) Work done by a force is given by the equation $W = F \cos \theta \times s$. Determine and explain the effect of work done due to a gradually increasing angle ' θ '.
- (b) A car is being driven by a force of 5×10^{10} N. It takes two minutes with the speed of 10 m/s for this car to reach the river side. Calculate the work done.

(3+2)=5

Or

- (a) A man weighs 300 N on the surface of the Earth. If he were taken to the Moon, his weight would be 50 N. Calculate the mass of this man on the Moon ($g = 10 \text{ m/s}^2$).
- (b) A man hears an echo of thunder 2 seconds after lightning strikes. Calculate the distance of lightning from the man (Speed of sound in air = 330 m/s).

(3+2)=5

**SECTION -B
(CHEMISTRY)
(Marks-26)**

Answer the following very short answer type questions in one sentence each: **1 X 3=3**

- 13)** Name the subatomic particles of an atom present inside the nucleus. **1**
14) State the law of constant proportions. **1**
15) Describe what happens when we burn a piece of paper? What type of a change is this? **1**

Answer the following very short answer type questions in 20-30 words each:

2 X 3=6

- 16)** How does the perspiration or sweating help keep our body cool on a hot day? **2**
17) What is the relationship between nanometer and metre. What will be the value of atomic radius of carbon in metres. (Atomic radius = 0.077 nm) **2**
18) Write the distribution of electrons in helium and hydrogen atoms. **2**

Answer the following short answer type questions in 30-40 words each:

3 X 4=12

- 19)** State the observations from the α -particle scattering experiment which led Rutherford to make the following conclusions: **3**
a. Most of the space in an atom is empty.
b. Entire mass of an atom is concentrated in its centre.
c. Centre is positively charged
- 20)** Why does the skin of your fingers shrink when you wash clothes for a long time? **3**
- 21)** A silver ornament of mass 'm' gram was polished with gold equivalent to 1% of the mass of silver. Calculate the ratio of the number of atoms of gold and silver in the ornament. **3**

Or

Write the chemical formula of the following using the criss-cross method:

- a. Ammonium sulphate
b. Magnesium bicarbonate
c. Barium nitrate

- 22)** Describe the process for separation of a mixture of common salt and ammonium chloride? **3**

Answer the following long answer type question in 50-60 words each: 5

- 23)** Distinguish between true solution and colloid.

Or

What is an octet? How does an element reach an octet state?

Draw a schematic atomic structure of magnesium and phosphorus (Number of protons of magnesium = 12, phosphorus = 15).

SECTION -C
(BIOLOGY)
(Marks-28)

Answer the following very short answer type questions in one sentence each: 1 X 4=4

- 24)** What is intercropping? **1**
25) Define biogeochemical cycle. **1**
26) Write functions of guard cells of stomata in the leaf. **1**
27) Name the organ affected when a person is suffering from jaundice. **1**

Answer the following very short answer type questions in 20-30 words each:

2 X 5=10

- 28)** List any three human activities which could lead to an increase in carbon dioxide content of air. **2**
- 29)** Poultry in India is the most efficient converter of low-fibre food into highly nutritious protein food. Justify the statement. **2**
- 30)** Give a short note on reproductive phase of pteridophytes. **2**
- 31)** Name the tissue present in the hard covering of seeds. Which chemical is responsible for making the tissue hard? **2**
- 32)** Distinguish between chloroplast and leucoplast with respect to their pigments and function. **2**

Answer the following short answer type questions in 30-40 words each:

3 X 3=9

- 33)** Explain any three methods of weed control. **3**
- 34)** We know that carbon dioxide is essential for plants for photosynthesis. Yet, why do we consider it a pollutant? **3**
- 35)** The doctor diagnosed that Lata has lost the power of fighting any infection. **3**
(a) Name the disease Lata is suffering from.
(b) Name the pathogen responsible for the cause of the disease.
(c) Mention any two modes of transmission of the disease from one person to another.

Or

The signs and symptoms of a disease depend on the tissue or organ which the microbe targets. Justify the statement giving examples.

Answer the following long answer type question in 50-60 words each:

5

36)

- (a) Define the terms and give one example of each:
- (i) Bilateral symmetry
 - (ii) Coelom
 - (iii) Diploblastic
- (b) Identify the group of animals with
- (i) Spiny body and radial body symmetry
 - (ii) Four pairs of jointed legs and no wings