The Champions' Science Olympiad (CSO)

Syllabus and Sample Paper

Class 9 (Syllabus)

**There will be 45 multiple choice questions from the below mentioned syllabus.
The time duration will be 1 hour.**

1. Matter around Us
2. Is matter around us pure
3. Atoms and Molecules
4. Motion
5. Force and Laws of Motion
6. Gravitation
7. Fundamental Unit of life
8. Tissue
9. Diversity in living organisms
10. Why do we fall ill?

Sample Paper

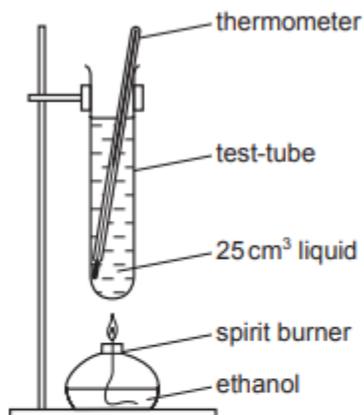1. An attempt was made to compress a gas and a solid using the apparatus shown.
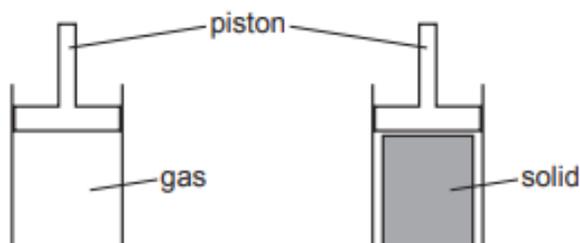
Which substance would be compressed and what is the reason for this?

	substance	reason
A	gas	the gas particles are close together
B	gas	the gas particles are far apart
C	solid	the solid particles are close together
D	solid	the solid particles are far apart

2. A liquid is heated until it boils.

Which result shows that the liquid in the test-tube is pure water?

A Condensation forms at the top of the test-tube.

B Steam is produced.

C The thermometer reads 100 °C.

D There is nothing left behind in the test-tube.

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3. The table shows the nucleon number and the number of neutrons in one atom of isotopes W, X, Y and Z.

| isotope	nucleon number	number of neutrons
W	3	18
X	3	20
Y	3	20
Z	4	22

Which statement about W, X, Y and Z is correct?

A W and X are isotopes of the same element.

B X and Y are isotopes of elements in the same group of the Periodic Table.

C Y and Z are isotopes of elements in the same period of the Periodic Table.

D Z has a higher proton number than Y.

4. Two runners take part in a race.

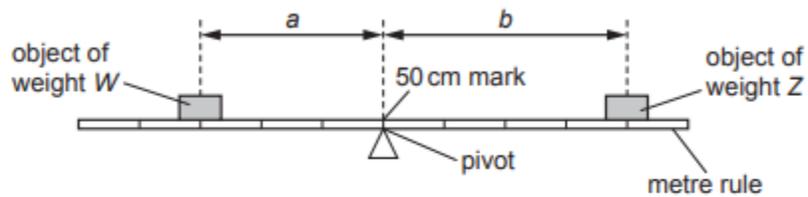The graph shows how the speed of each runner changes with time.
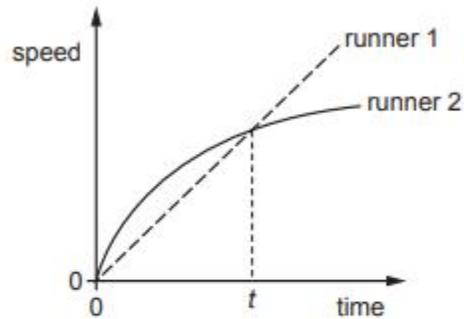
What does the graph show about the runners at time t?

A Both runners are moving at the same speed.

B Runner 1 has zero acceleration.

C Runner 1 is overtaking runner 2.

D Runner 2 is slowing down.

5. The diagram shows an object of weight W and an object of weight Z balanced on a uniform metre rule.

Which equation relating to W, Z, a and b is correct?

A $\dfrac{W}{a}\ \dfrac{Z}{b}$

B $W \times Z = a \times b$

C $W \times a = Z \times b$

D $W \times (a + b) = Z$

| 6 | An object has a mass of 50 kg. |

The gravitational field strength on Earth is 10.0 N/kg.

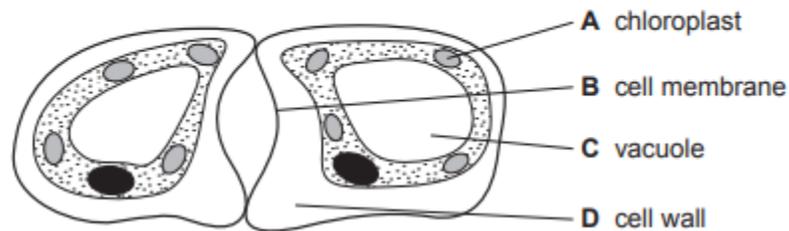The gravitational field strength on a distant planet is 4.0 N/kg.

What is the weight of the object on Earth, and what is its weight on the distant planet?

	on Earth	on the distant planet
A	5.0 kg	12.5 kg
B	5.0 N	12.5 N
C	500 kg	200 kg
D	500 N	200 N

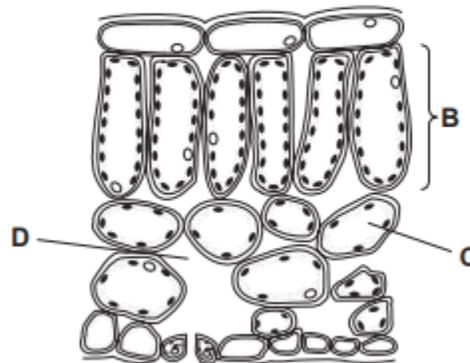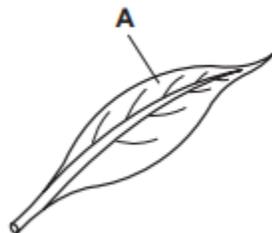| 7 | The diagram shows a student's drawing of two guard cells. |

Which label line is **not** correct?

A chloroplast

B cell membrane

C vacuole

D cell wall

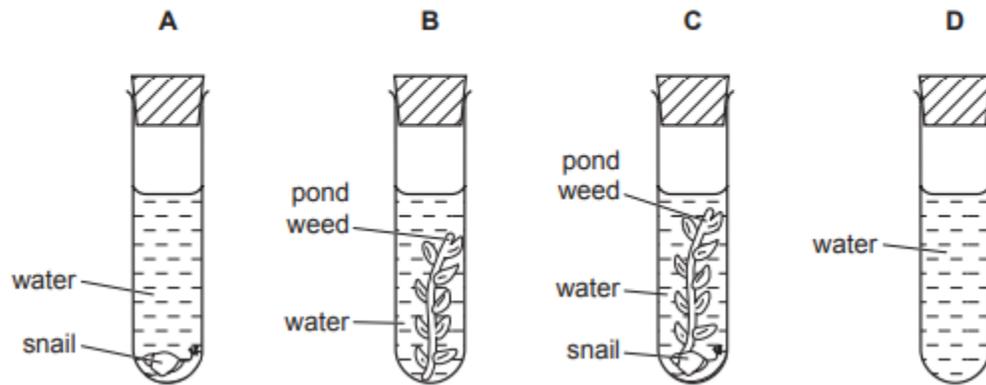| 8 | The diagrams show a leaf and a section through part of the same leaf. |

Which label on the diagrams indicates an organ?

| 9 | Four test-tubes are set up as shown in the diagram and left in full sunlight.

After several hours, which test-tube contains the most dissolved oxygen?

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|---|---|
| 10 | Making anti-viral drugs is more difficult than making anti-bacterial medicines because
(a) viruses make use of host machinery
(b) viruses are on the border line of living and non-living
(c) viruses have very few biochemical mechanisms of their own
(d) viruses have a protein coat |