



The Champions' Science Olympiad (CSO)

The Champions' Olympiads

Syllabus and Sample Paper

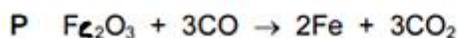
Class 10 (Syllabus)

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

1. Chemical Reactions and Equations
2. Acids, Bases and Salts
3. Metals and Non-Metals
4. Life Processes
5. Control and coordination
6. Reproduction
7. Light
8. Electricity
9. Magnetism
10. Human eye and Colourful world

Sample Paper

1. Equations P and Q represent two reactions which occur inside a blast furnace.



Which type of reactions are P and Q?

	P	Q
A	redox	redox
B	redox	thermal decomposition
C	thermal decomposition	redox
D	thermal decomposition	thermal decomposition

2. The table shows the pH of four aqueous solutions, W, X, Y and Z.

substance	pH
W	7
X	9
Y	2
Z	5

Universal Indicator is added to each solution.

Which row shows the colour of each solution after the indicator is added?

	W	X	Y	Z
A	blue	green	orange	red
B	green	blue	red	orange
C	orange	red	blue	green
D	red	orange	green	blue

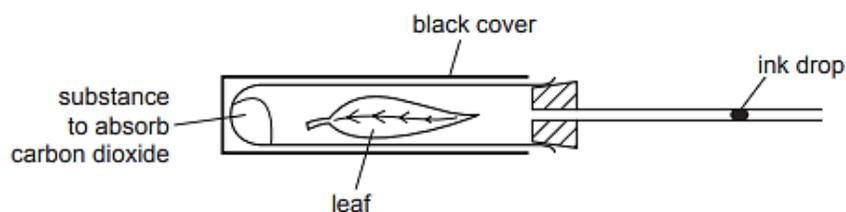
3. Some properties of four elements W, X, Y and Z are listed.

- 1 W melts at 1410°C and forms an acidic oxide.
- 2 X has a high density and is easily drawn into wires.
- 3 Y acts as a catalyst and its oxide reacts with acids.
- 4 Z is a red-brown solid used to make alloys.

Which of the elements are metals?

- A** 1 and 3 **B** 2, 3 and 4 **C** 2 and 3 only **D** 2 and 4 only

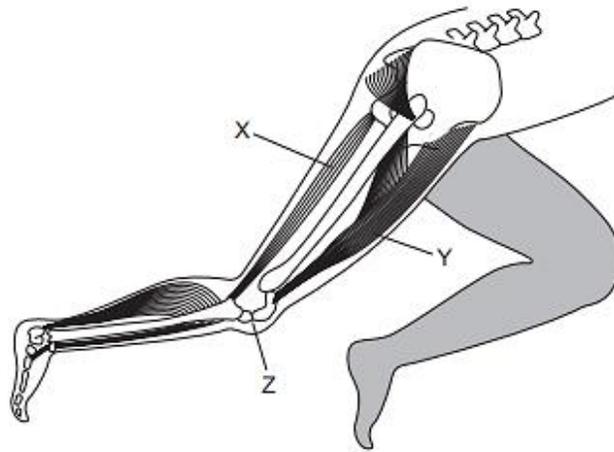
4. The diagram shows an experiment to investigate gas exchange in a leaf.



In which direction does the ink drop move and for what reason?

	direction	reason
A	to the left	photosynthesis
B	to the left	respiration
C	to the right	photosynthesis
D	to the right	respiration

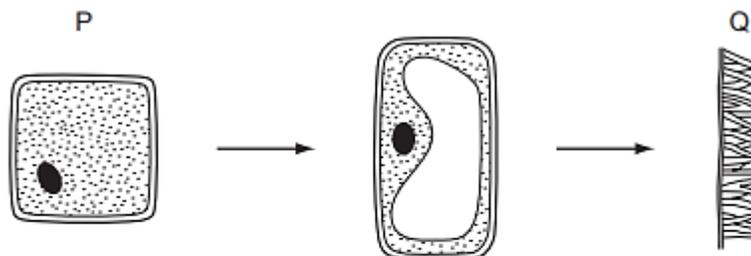
5. The diagram shows some bones and muscles in a leg of a human.



What happens to muscle Y and to the leg at joint Z, when muscle X contracts?

	muscle Y	leg at joint Z
A	contracts	bends
B	contracts	straightens
C	relaxes	bends
D	relaxes	straightens

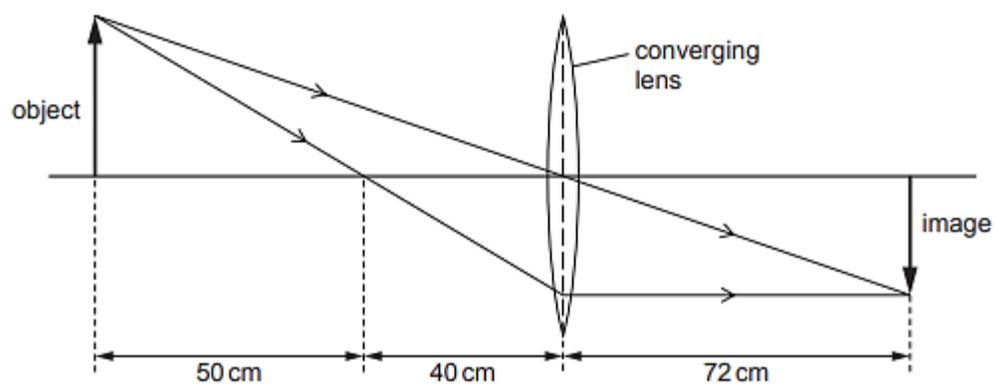
6. The diagrams show a plant cell P changing to become cell Q.



What do the changes between P and Q show?

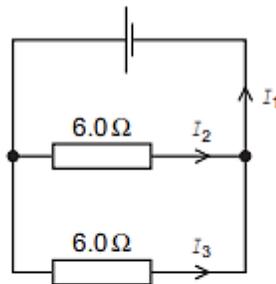
- A** development and germination
- B** germination and mitosis
- C** growth and development
- D** mitosis and growth

7. The ray diagram shows the image of an object formed by a converging lens.



What is the focal length of the lens?

- A 40 cm B 50 cm C 72 cm D 90 cm
8. The diagram shows a cell connected to two $6.0\ \Omega$ resistors. Three currents, I_1 , I_2 and I_3 , are labelled.

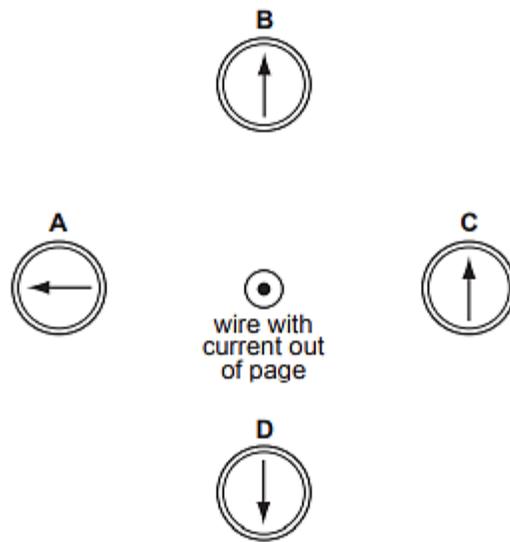


Which row correctly compares I_2 and I_3 with I_1 ?

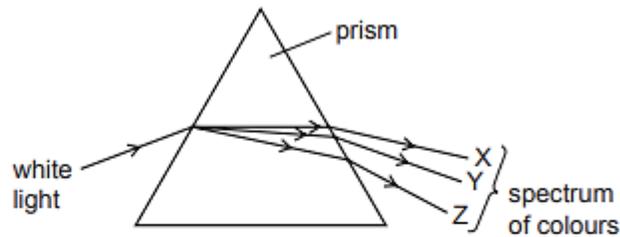
	I_2	I_3
A	same as I_1	same as I_1
B	same as I_1	smaller than I_1
C	smaller than I_1	same as I_1
D	smaller than I_1	smaller than I_1

9. A wire perpendicular to the page carries an electric current in a direction out of the page. There are four compasses near the wire.

Which compass shows the direction of the magnetic field caused by the current?



10. The diagram shows the dispersion of white light by a prism.



Which row could be correct for the colours seen at X, at Y and at Z?

	colour at X	colour at Y	colour at Z
A	red	violet	yellow
B	red	yellow	violet
C	violet	yellow	red
D	yellow	red	violet