

Class 8 · Science Olympiad

Total questions 50	Total marks 60	Time 60 minutes	Negative marking None
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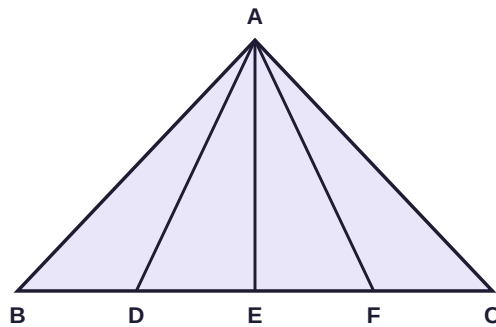
Each question has four options, of which only one is correct. Mark your answer on the answer sheet. The Achievers Section carries higher marks per question. The answer key with full solutions is at the end of this paper.

This is original practice material written to the Level 1 pattern. It is not a past paper and is not affiliated with SOF or any official olympiad body.

Logical Reasoning

10 questions · 1 mark each · 10 marks

Q1. How many triangles are there in the given figure?



- (A) 12 (B) 11 (C) 10 (D) 9

Q2. Which letter comes next? C, F, I, L, ____

- (A) N (B) P (C) O (D) R

Q3. Find the odd one out: 14, 24, 30, 42, 60

- (A) 30 (B) 14 (C) 42 (D) 60

Q4. Find the next number in the pattern: 4, 10, 22, 46, ____

- (A) 92 (B) 95 (C) 96 (D) 94

Q5. Which word would come FIRST in a dictionary?

- (A) melon (B) museum (C) monkey (D) marble

Q6. Read the statements and choose the conclusion that MUST be true.

All squares are rectangles. All rectangles have four sides.

- (A) All rectangles are squares. (B) Some squares have three sides.
(C) All squares have four sides. (D) No rectangle is a square.

Q7. $7 : 49 :: 8 : \underline{\hspace{1cm}}$

- (A) 16 (B) 64 (C) 49 (D) 81

Q8. Kabir walks 9 m towards north, turns right and walks 2 m, then turns right again and walks 9 m. How far is Kabir from the starting point, and in which direction?

- (A) 11 m, North (B) 2 m, East (C) 9 m, East (D) 2 m, West

Q9. Pointing to a boy in a photograph, Vikram said, "He is the son of my paternal grandfather's only son." How is the boy related to Vikram?

- (A) Uncle (B) Brother (C) Cousin (D) Nephew

Q10. If the 18th of a month is a Friday, what day of the week is the 27th of the same month?

- (A) Tuesday (B) Monday (C) Saturday (D) Sunday

Science

35 questions · 1 mark each · 35 marks

Q11. How many bones does an adult human body have?

- (A) 201 (B) 212 (C) 206 (D) 300

Q12. Through which tiny pores do leaves exchange gases?

- (A) Veins (B) Roots (C) Stomata (D) Petals

Q13. What is the natural satellite of the Earth called?

- (A) The Sun (B) Mars (C) The Moon (D) A comet

Q14. What is the chemical symbol for gold?

- (A) Au (B) Ag (C) Go (D) Gd

Q15. Which part of the cell controls its activities?

- (A) The cell wall (B) The vacuole
(C) The nucleus (D) The cytoplasm

Q16. Which device converts electrical energy into light energy?

- (A) A battery (B) A dynamo
(C) An electric bulb (D) A microphone

Q17. Common salt is chemically known as:

- (A) Sodium chloride (B) Sodium bicarbonate
(C) Potassium nitrate (D) Calcium carbonate

Q18. What causes the change of seasons on the Earth?

- (A) Changes in the Sun's size (B) The Earth moving closer to the Sun
(C) The tilt of the Earth as it orbits the Sun (D) The Moon blocking the Sun

Q19. What is the basic unit of life?

- (A) The atom (B) The tissue (C) The cell (D) The organ

Q20. Which of these is a major cause of global warming?

- (A) Planting more trees (B) Using solar energy
(C) Walking to school (D) Excess carbon dioxide in the atmosphere

Q21. Which simple machine is used in a see-saw?

- (A) Screw (B) Pulley (C) Lever (D) Wedge

- Q22. Which part of the human eye controls how much light enters?
(A) The iris (B) The optic nerve
(C) The retina (D) The cornea
- Q23. What is the chemical formula of water?
(A) CO₂ (B) H₂O (C) O₂ (D) NaCl
- Q24. What happens to the speed of light when it enters glass from air?
(A) It becomes zero (B) It decreases
(C) It increases (D) It stays the same
- Q25. Which gas in the air do we need to breathe?
(A) Nitrogen (B) Oxygen
(C) Helium (D) Carbon dioxide
- Q26. Which of these is a physical change?
(A) Melting of ice (B) Cooking of food
(C) Burning of paper (D) Rusting of iron
- Q27. What kind of energy does a moving object have?
(A) Nuclear energy (B) Kinetic energy
(C) Sound energy (D) Chemical energy
- Q28. Which gas do living things release during respiration?
(A) Oxygen (B) Nitrogen
(C) Carbon dioxide (D) Hydrogen
- Q29. Which gas makes up most of the air around us?
(A) Carbon dioxide (B) Oxygen
(C) Hydrogen (D) Nitrogen
- Q30. What is the normal body temperature of a healthy human?
(A) About 37°C (B) About 30°C (C) About 42°C (D) About 25°C
- Q31. Which of these is a non-biodegradable waste?
(A) Plastic bag (B) Vegetable peel
(C) Cotton cloth (D) Paper
- Q32. Which of these diseases is caused by a virus?
(A) Common cold (B) Cholera (C) Typhoid (D) Tuberculosis
- Q33. Which force pulls objects towards the Earth?
(A) Friction (B) Magnetism (C) Gravity (D) Pressure
- Q34. What kind of energy is stored in a stretched rubber band?
(A) Sound energy (B) Light energy
(C) Potential energy (D) Kinetic energy

Q35. What do we call animals that are active at night?

- | | |
|-----------------------|---------------------|
| (A) Amphibians | (B) Aquatic animals |
| (C) Nocturnal animals | (D) Herbivores |

Q36. What is the function of the root hairs of a plant?

- | | |
|----------------------------------|------------------------|
| (A) To store sunlight | (B) To make food |
| (C) To absorb water and minerals | (D) To hold the flower |

Q37. Which food gives us the most energy?

- | | |
|--------------|-------------------|
| (A) Minerals | (B) Carbohydrates |
| (C) Water | (D) Vitamins |

Q38. What is the process of separating salt from sea water by heating called?

- | | |
|-----------------|----------------------------|
| (A) Sublimation | (B) Distillation of solids |
| (C) Filtration | (D) Evaporation |

Q39. What do we call the water cycle stage where clouds form?

- | | |
|------------------|-------------------|
| (A) Condensation | (B) Precipitation |
| (C) Evaporation | (D) Filtration |

Q40. Loss of water vapour from the leaves of a plant is called:

- | | |
|------------------|-------------------|
| (A) Condensation | (B) Germination |
| (C) Respiration | (D) Transpiration |

Q41. Which gas do plants take in during photosynthesis?

- | | |
|--------------------|--------------|
| (A) Nitrogen | (B) Oxygen |
| (C) Carbon dioxide | (D) Hydrogen |

Q42. What is the SI unit of power?

- | | | | |
|------------|-----------|----------|----------|
| (A) Newton | (B) Joule | (C) Watt | (D) Volt |
|------------|-----------|----------|----------|

Q43. Which of these is an acid?

- | | |
|-----------------|--------------------------|
| (A) Lemon juice | (B) Baking soda solution |
| (C) Lime water | (D) Soap solution |

Q44. Which part of the plant carries water from the roots to the leaves?

- | | | | |
|-----------------|---------------|-----------------|----------------|
| (A) The cuticle | (B) The xylem | (C) The stomata | (D) The phloem |
|-----------------|---------------|-----------------|----------------|

Q45. Light travels fastest through which of these?

- | | | | |
|-----------|---------|------------|-----------|
| (A) Water | (B) Air | (C) Vacuum | (D) Glass |
|-----------|---------|------------|-----------|

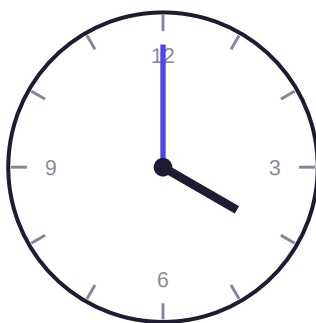
Achievers Section

5 questions · 3 marks each · 15 marks

Q46. Using each of the digits 0, 3, 1, 5 exactly once, what is the smallest 4-digit number that can be formed?

- | | | | |
|----------|----------|----------|----------|
| (A) 1035 | (B) 1044 | (C) 0135 | (D) 5310 |
|----------|----------|----------|----------|

Q47. The clock in the figure shows 4:00. What is the angle between the hour hand and the minute hand?



- (A) 120° (B) 150° (C) 105° (D) 135°

Q48. The average of 4 numbers is 38. 3 of them are 115, 3, 10. What is the remaining number?

- (A) 38 (B) 22 (C) 24 (D) 26

Q49. If RING is coded as ULQJ, how is ROAD coded?

- (A) XUGJ (B) OLXA (C) URDG (D) GDRU

Q50. How many numbers between 50 and 75 leave a remainder of 1 when divided by 7?

- (A) 2 (B) 4 (C) 3 (D) 5

Answer Key

1	2	3	4	5	6	7	8	9	10
C	C	B	D	D	C	B	B	B	D
11	12	13	14	15	16	17	18	19	20
C	C	C	A	C	C	A	C	C	D
21	22	23	24	25	26	27	28	29	30
C	A	B	B	B	A	B	C	D	A
31	32	33	34	35	36	37	38	39	40
A	A	C	C	C	C	B	D	A	D
41	42	43	44	45	46	47	48	49	50
C	C	A	B	C	A	A	C	C	C

Solutions

Q1. (C) Every triangle has apex A and two of the 5 base points as its other corners. Choosing 2 from 5 gives 10 triangles.

Q2. (C) Each letter moves 3 place(s) forward in the alphabet, so after L comes O.

Q3. (B) Every other number is a multiple of 6. 14 is not.

Q4. (D) Each number is doubled and 2 is added: $46 \times 2 + 2 = 94$.

Q5. (D) In alphabetical order the words run marble, melon, monkey, museum, so marble comes first.

Q6. (C) From "All squares are rectangles. All rectangles have four sides." it follows necessarily that all squares have four sides.

- Q7. (B) The second number is the first multiplied by itself: $7 \times 7 = 49$, so $8 \times 8 = 64$.
- Q8. (B) The two 9 m walks (north, then south) cancel out, leaving only the 2 m walked towards the east. So the answer is 2 m, East.
- Q9. (B) Vikram's paternal grandfather's only son is Vikram's own father, so that man's son is Vikram's own sibling. The answer is Brother.
- Q10. (D) 9 days later is 1 week(s) and 2 day(s), so the day moves 2 place(s) on from Friday to Sunday.
- Q11. (C) An adult skeleton has 206 bones; a baby is born with about 300, which later fuse.
- Q12. (C) Stomata are small openings on the leaf surface for gas exchange.
- Q13. (C) The Moon is the Earth's only natural satellite.
- Q14. (A) Gold has the symbol Au, from the Latin aurum.
- Q15. (C) The nucleus is the control centre of the cell.
- Q16. (C) A bulb takes in electrical energy and gives out light and heat. The answer is An electric bulb.
- Q17. (A) Common salt is sodium chloride, NaCl.
- Q18. (C) The Earth's axis is tilted, so different parts get more direct sunlight at different times of the year. The answer is The tilt of the Earth as it orbits the Sun.
- Q19. (C) Every living thing is made of cells, the basic unit of life. The answer is The cell.
- Q20. (D) Greenhouse gases such as carbon dioxide trap heat and warm the planet. The answer is Excess carbon dioxide in the atmosphere.
- Q21. (C) A see-saw is a lever balancing on a pivot called the fulcrum.
- Q22. (A) The iris changes the size of the pupil to control the light entering.
- Q23. (B) A water molecule has two hydrogen atoms and one oxygen atom: H_2O .
- Q24. (B) Glass is optically denser than air, so light slows down and bends. The answer is It decreases.
- Q25. (B) We breathe in oxygen and breathe out carbon dioxide.
- Q26. (A) Melting changes only the state, not the substance, so it is a physical change. The answer is Melting of ice.
- Q27. (B) Energy due to motion is called kinetic energy.
- Q28. (C) Respiration uses oxygen and releases carbon dioxide.
- Q29. (D) Air is about 78% nitrogen and about 21% oxygen.
- Q30. (A) Normal human body temperature is about 37°C (98.6°F).
- Q31. (A) Plastic does not rot away naturally, so it is non-biodegradable. The answer is Plastic bag.
- Q32. (A) The common cold is viral; the other three are caused by bacteria.
- Q33. (C) Gravity is the force that pulls every object towards the centre of the Earth.
- Q34. (C) A stretched band stores elastic potential energy.
- Q35. (C) Animals such as owls and bats that are active at night are called nocturnal. The answer is Nocturnal animals.
- Q36. (C) Root hairs greatly increase the surface for absorbing water and minerals. The answer is To absorb water and minerals.
- Q37. (B) Carbohydrates such as rice, wheat and potato are the body's main energy food.
- Q38. (D) Heating the water away leaves the salt behind - this is evaporation.
- Q39. (A) Water vapour cools and condenses into tiny droplets, forming clouds. The answer is Condensation.
- Q40. (D) Transpiration is the loss of water vapour through the stomata.
- Q41. (C) Plants take in carbon dioxide and release oxygen during photosynthesis.
- Q42. (C) Power is the rate of doing work, measured in watts.
- Q43. (A) Lemon juice contains citric acid and tastes sour; the others are bases.
- Q44. (B) Xylem tissue carries water upwards; phloem carries food. The answer is The xylem.

Q45. (C) Light travels fastest in a vacuum and slows down in denser media.

Q46. (A) A 4-digit number cannot begin with 0, so the smallest possible first digit is 1. The remaining digits are then placed in increasing order: 1035.

Q47. (A) The minute hand is at 0° from 12 and the hour hand at 120° from 12, so the angle between them is 120° .

Q48. (C) The 4 numbers add up to $38 \times 4 = 152$. The given numbers add up to 128, so the missing number is $152 - 128 = 24$.

Q49. (C) Every letter moves 3 place(s) forward, so ROAD becomes URDG.

Q50. (C) The numbers are 57, 64, 71 — 3 of them.

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