



## CREST Science Olympiad (CSO)

# Sample Paper

## Pattern and Marking Scheme

Grade	Topic/Section	No. of Questions	Marks per Question	Total Marks
Grade 6	Practical Science	40	1	40
	Achiever's Section	10	2	20
<b>Grand Total</b>		<b>50</b>		<b>60</b>

The total duration of the exam is 60 minutes.

## Syllabus

**Section 1:** Motion and Measurement of Distances, Light, Shadows and Reflections, Electricity and Circuits, Fun with Magnets, Our Environment, Sorting and Separation of Materials, Changes Around Us, Living Organisms and Their Surroundings, Food and its Components, Fibre to Fabric.

**Achievers Section:** Higher Order Thinking Questions - Syllabus as per Section 1

For more details, visit <https://www.crestolympiads.com/science-olympiad-cso>

## Practical Science (Each Question is 1 Mark)

1. While measuring the length of a pencil, the reading of the scale at one end was 4.2 cm and at the other end was 16.5 cm.

What is the length of the pencil?

- |            |            |
|------------|------------|
| a. 22.3 cm | b. 20.7 cm |
| c. 12.3 cm | d. 13.3 cm |

2. Spot the energy conversions that take place in a torch:

1. Chemical → electrical → light
2. Electrical → chemical → light
3. Electrical → heat → chemical
4. Light → chemical → electrical



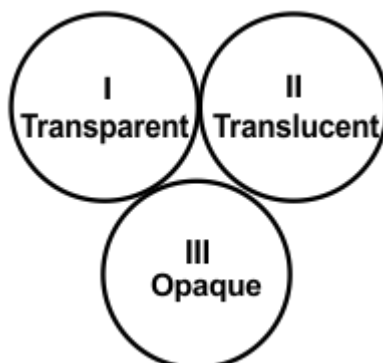
- |      |      |
|------|------|
| a. 1 | b. 2 |
| c. 3 | d. 4 |

3. Emma inflated a balloon and kept it out in the sun. After some time, what will happen to be the balloon?

- a. Its size will decrease because the air in it compresses on heating.
- b. Its size will increase because the air in it compresses on heating.
- c. Its size will increase because the air in it expands on heating.
- d. Its size will decrease because the air in it expands on heating.

4. Following is a list of few objects. Classify them correctly under the headings shown in the figure below:

1. Clear glass
2. Cement
3. Butter paper
4. Air
5. Frosted glass
6. Bag



- a. I - 1, 2, II - 2, 3, III - 3, 5  
 b. I - 2, 6, II - 1, 4, III - 3, 5  
 c. I - 3, 5, II - 2, 6, III - 1, 4  
 d. I - 1, 4, II - 3, 5, III - 2, 6

5. Which of the following statements is INCORRECT?

1. By eating only vitamins, we cannot remain healthy.
2. By eating proper roughage, we can prevent anaemia.
3. Milk is regarded as a complete food.
4. Fat is not at all necessary for good health. It causes obesity only.

- a. 2 only  
 b. 3 only  
 c. Both 2 and 4  
 d. Both 1 and 3

6. Answer the following question and choose the correct option:

In which direction does the bar magnet come to rest when suspended freely?

- a. South-west direction  
 b. North-east direction  
 c. East-west direction  
 d. North-south direction

7. Spot the principle on which the distillation method works for separating alcohol and water mixture?



- a. Alcohol and water have different solubility.  
 b. Alcohol and water have different weights.  
 c. Alcohol and water have different colours.  
 d. Alcohol and water have different boiling points.

8. How does a chameleon protect itself from its enemies?



- a. It curls its body.  
 b. It releases bad smell.  
 c. It changes the colour of its body.  
 d. It has a hard shell on its body.

9. Given below are two groups of fibres namely I and II:

**Group I** - Cotton, Jute, hemp

**Group II** - Polyester, Nylon, Acrylic

On what basis have these fibres been grouped?

- a. a - Man-made fibres, b - Synthetic fibres      b. a - Natural animal fibres, b - Synthetic fibres
- c. a - Synthetic fibres, b - Natural fibres      d. a - Natural plant fibres, b - Synthetic fibres

10. Given below are two groups of materials namely group X and group Y:

**Group X** - Iron, cobalt and nickel

**Group Y** - Wood, rubber and stainless steel

On what basis have they been grouped?

- a. Group X - They are all artificial magnets.  
Group Y - They are natural magnets.
- b. Group X - They are non-magnetic materials.  
Group Y - They are magnetic materials.
- c. Group X - They all show repulsion between similar poles.  
Group Y - They all show attraction between similar poles.
- d. Group X - They are attracted by magnets.  
Group Y - They are non-magnetic materials.

11. Four of Mrs. Daniel's students were discussing living organisms and their surroundings. This is what they said:

Ron: Terrestrial habitat is the habitat of all plants and animals that live on land.

John: Water, soil and air are the biotic factors of a habitat.

Michael: Aquatic habitat is the habitat of all plants and animals that live in water.

Richard: Adaptation refers to the presence of specific features which enables a plant or an animal to live in a particular habitat.

Who made the wrong statement?

- a. Ron only      b. Michael only
- c. John only      d. Both Richard and John

12. Identify the missing parts P and Q correctly in the given flow chart:

Fiber → P → Q

- a. P - Yarn, Q - Fabric      b. P - Fabric, Q - Cloth
- c. P - Thread, Q - Yarn      d. P - Cloth, Q - Thread

13. Given below are pictures of some objects. Identify the similarity between them:



Rubber



Glass



Oil



Diamond



Dry wood

- a. They are all good insulators of electricity.      b. They are all good conductors of electricity.
- c. They are all poor insulators of electricity.      d. They are all used for making wires.

14. Complete the following sentences and select the correct option:

- I. If it does not rain in a region for a year or more then the soil continues to lose water by \_\_\_\_\_.
- II. Heavy rains may lead to rise in the level of water in \_\_\_\_\_.

- a. I - precipitation and transportation, II - wells
- b. I - evaporation and photosynthesis, II - tube wells
- c. I - condensation and boiling, II - groundwater
- d. I - evaporation and transpiration, II - rivers, lakes and ponds causing floods

15. Given below are a set of phenomena:

- 1. Folding the paper into an aeroplane.
- 2. Melting of ice candy.
- 3. Wet clothes to dry clothes
- 4. Dissolving sugar in water

What is the basis of the given grouping?

- a. They all show irreversible chemical changes.
- b. They all show both physical and chemical changes taking place.
- c. They all show reversible physical changes.
- d. They all show no change in the states of matter.

16. Molly tried to look at a toy bike with red light through an object but he could only see a faint red light, not the toy bike.

Thus, we can conclude by saying that the object is a \_\_\_\_\_.

- a. mirror
- b. transparent object
- c. opaque object
- d. translucent object

17. Select the INCORRECT match from below:

- 1. Anaemia – Weakness
- 2. Rickets - Tooth decay
- 3. Scurvy - Bleeding gums
- 4. Beriberi - Decreases muscle function

- a. 2 only
- b. 4 only
- c. Both 1 and 2
- d. Both 1 and 3

18. Which of the following pairs are wrongly classified?

M: Nitrogen - Takes up four-fifths of the air space

N: Oxygen - End product of photosynthesis

O: Carbon dioxide - Production by factories

P: Smoke - Produced by plants

- a. M and N
- b. N and O
- c. M and P
- d. O and P

19. Given below is the picture of elbow joint and joint at the wrist. Identify the correct difference between these two joints:



- a. Elbow joint is a gliding joint that provides little movement in all directions whereas wrist joint is hinge joint that provides back and forth movement.
- b. Elbow joint is a ball and socket joint that provides movement in all direction whereas wrist joint is fixed joint where bones cannot move at all.
- c. Elbow joint is fixed joint that does not allow any movement whereas wrist joints are ball and socket joint that provides movement in all directions.
- d. Elbow joint is hinge joint that provides back and forth movement whereas wrist joint provides little movement in all directions and is a gliding joint.

**20.** Select the one from below that is different from the other three based on the types of motion:

- 1. Heart pumping blood
- 2. A racing car speeding on a race track
- 3. A rocking chair
- 4. Revolution of the moon around the earth

- a. 1
- b. 2
- c. 3
- d. 4

**21.** Consider the following statements and choose the correct option:

Statement 1: When separating a mixture of saltwater (solution), filtration method is employed to obtain pure salt from the solution.

Statement 2: Fractional distillation is employed to separate a mixture of iron filings and powdered sugar (sucrose).

- a. Statement 1 is correct but statement 2 is incorrect.
- b. Statement 1 is incorrect but statement 2 is correct.
- c. Both the statements are correct.
- d. Both the statements are incorrect.

**22.** Two classmates were having a classroom discussion about the air around us. This is what they said:

Student 1: When we blow onto a hot cup of tea, cool air gets mixed with outside warm air and it becomes cooler.

Student 2: Without blowing air from our mouth we can cool the hot fried rice by spreading it over on a plate.

Choose the correct option related to the above two statements:

- a. Student 1 spoke correctly but student 2 was incorrect
- b. Student 1 spoke incorrectly but student 2 was correct
- c. Both the students were correct
- d. Both the students were incorrect

**23.** The picture below is that of a compass. Which of the following metal is used to make the needle of a compass?

- 1. Gold
- 2. Iron
- 3. Silver
- 4. Steel



- a. 3 only
- b. 2 only
- c. Both 1 and 2
- d. None of the above

**24.** Separating mixtures is a scientific process in which two or more substances are separated which were once together. Separating mixtures is useful in many different ways. Identify the example of the way by which mixtures are separated to remove undesirable components:

- a. Removal of small stones from rice and pulses before cooking.
- b. Churning milk to obtain butter.
- c. Petrol and diesel are obtained from crude oil.
- d. None of the above

**25.** Which among the following pairs are not irreversible changes?

- 1. Dissolution
- 2. Rusted iron nails
- 3. Baking a potato
- 4. Freezing water

- a. 1 and 2
- b. 2 and 3
- c. 1 and 4
- d. 3 and 4

**26.** Two students were discussing the motion and this is what they said:

Ana: The needle of a sewing machine undergoes circular motion.

Jack: Motion of a body thrown upward at an angle is rectilinear.

Choose the correct option regarding the above two statements:

- a. Ana is correct but Jack is incorrect
- b. Ana is incorrect but Jack is correct
- c. Both Ana and Jack are correct
- d. Both Ana and Jack are incorrect

**27.** State whether the following statements are true or false:

- 1. If the source of light is closer to the object, a smaller shadow is formed than when the source of light is far from the object.
- 2. The ground, walls of the rooms, a building, or other such surfaces act as a screen for the shadows you observe in everyday life.

- a. 1-True, 2-False
- b. 1-False, 2-True
- c. 1-True, 2-True
- d. 1-False, 2-False

**28.** Robert was discussing fibres and fabrics with his classmate Shane and this is what they said:

Robert: Polyester burns slowly and does not shrink. It is always self-extinguishing. It leaves no ash but its black smoke and fume are hazardous.

Shane: Silk is a protein fibre which burns slowly and curls away from the flame. It is self-extinguishing. It gives out little or no smoke and the fume has no hazard.

Choose the correct option related to the two statements:

- a. Both Robert and Shane are correct      b. Both Robert and Shane are wrong  
c. Robert is correct but Shane is wrong      d. Robert is wrong but Shane is correct

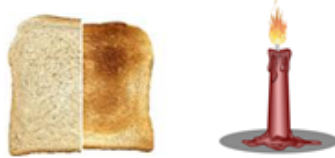
29. Which of the following method will Sarah use at home to separate husks, small stones and earthy materials from a bowl full of pulses?

- a. Threshing      b. Hand-picking  
c. Sieving      d. Winnowing

30. Milk turns sour when kept outside for a long time. What kind of change does it depict?

- a. Irreversible chemical change      b. Reversible physical change  
c. Irreversible physical change      d. Reversible chemical change

31. How is toasting of bread different from melting of wax?



- a. The toasting of bread is reversible change whereas the melting of wax is irreversible change.  
b. The toasting of bread brings about change in state and composition whereas the melting of wax cause change in chemical properties.  
c. The toasting of bread is a reversible physical change whereas the melting of wax is a chemical change.  
d. The toasting of bread is irreversible change whereas the melting of wax is reversible change.

32. Observe the figure below and complete the following sentence:

This distance-time graph indicates that \_\_\_\_\_.



- a. a car is parked or has stopped      b. a car is moving very fast  
c. a car is moving with different speeds      d. a car is moving with a constant speed

33. Which of the following is/are NOT the characteristic feature(s) of the cotton ginning process?

- a. It refers to the process of separation of the cotton fibres from its seeds.  
b. It refers to the process of separation of the cotton fibres from its seeds.  
c. The stems of the cotton plants are immersed in water and allowed to rot for a few days in the process called retting.  
d. Both b and c



34. Read the statements given below and select the correct option:  
Statement 1 - When the size of the foreign particle is too small to be picked by hand or when the quantity is too large, sieving is used for separating substances.  
Statement 2 - Separating bran from flour is done by sieving.
- Statement 1 is correct but statement 2 is incorrect
  - Statement 1 is incorrect but statement 2 is correct
  - Both the statements are correct
  - Both the statements are incorrect

35. Observe the picture below of three bulbs and correctly identify the type of object they are made of:



- A - Translucent object, B - Opaque object, C - Transparent object
  - A - Opaque object, B - Transparent object, C - Translucent object
  - A - Transparent object, B - Opaque object, C - Translucent object
  - A - Translucent object, B - Transparent object, C - Opaque object
36. Given below are two groups of substances:  
**Group 1:** Hay, Cow dung, Fruit peel, Twigs  
**Group 2:** Glass, Batteries, Plastic box, Electronic waste  
On what basis has these two grouping been done?
- Group 1 - Non-biodegradable wastes, Group 2 - Biodegradable wastes
  - Group 1 - Biodegradable wastes, Group 2 - Non-biodegradable wastes
  - Group 1 - Wastes that can be decomposed easily, Group 2 - Wastes that cannot be decomposed easily
  - Both b and c
37. State the reason why glass windows appear hazy if not wiped off properly:
- Glass secretes water
  - Presence of water vapour and dust particles in air that stick to the glass
  - Glass windows are manufactured like that way
  - Both a and c
38. In the following question, an assertion and a reason are given. Choose the correct option:  
**Assertion:** Knitting is the process of arranging two sets of yarns together to make a fabric.  
**Reason:** Knitting is exclusively used to make woollen garments.
- Both assertion and reason are true and reason is the correct explanation of assertion.
  - Both assertion and reason are true and reason is not the correct explanation of assertion.
  - Assertion is true but reason is false.
  - Both assertion and reason are false.

39. Plants do not move from one place to another in search of food and shelter. Some plants like Mimosa (Touch-me-not) show leaf movements, A sunflower always faces the sun. From the above paragraph what can be concluded?

- a. Plants can move their body parts.
- b. Plants response to the stimulus.
- c. Plants show locomotion.
- d. Both a and b

40. Choose the correct option and complete the following sentence:

The light from torch when falls on a teddy bear, form a shadow on the screen behind the teddy bear as shown in the figure. As the torch is moved away from the teddy bear the shadow will \_\_\_\_\_.



- a. become smaller
- b. become larger
- c. change its shape
- d. remain unchanged

## Achiever's Section (Each Question is 2 Marks)

41. State whether the following statements are true or false:

1. Reusing materials after they have been changed into another form is called reusing.
2. Fog appearing on a cold winter morning is due to condensation.
3. Evaporation takes place from all open surfaces of water bodies so water vapour gets continuously added to the air.
4. A glass containing ice has water droplets around it. We can conclude that the glass of ice is not so strong hence water goes through the glass and settles outside.

- a. 1-False, 2-True, 3-True
- b. 1-True, 2-True, 3-False
- c. 1-True, 2-True, 3-True
- d. 1-False, 2-False, 3-False

42. Three students gave the following statements during a classroom discussion. This is what they said:

David: The motion of a vibrating tuning fork exhibits periodic motion.

Nora: The blades of the fan is said to move in a rotatory motion.

James: The length of the footsteps is the same for different people.

Which student(s) made incorrect statement(s)?

- a. David and Nora
- b. Nora and James
- c. James only
- d. David only

43. Which of the following will not allow electric current to pass through?

1. Plastic comb
2. Gold earring
3. Silver spoon
4. Wooden box

- 5. Copper utensil
- 6. Lime juice

- a. 1 and 4
- b. 2 and 3
- c. 5 and 6
- d. 1 and 6

44. Which of the following statement is INCORRECT related to nutrients present in food?
- A. There is no loss in vitamins if fruits and vegetables are washed after peeling or cutting them.
  - B. The skins of many fruits are rich in many nutrients.
  - C. Cooking kills most of the nutrients present in foods.
  - D. Rice and pulses will lose their vitamins and minerals if they are repeatedly washed.

- a. A only
- b. B only
- c. Both A and B
- d. Both B and C

45. What do the following suggest about all living things?

- 1. Flowers of some plants bloom only at night.
- 2. In some plants, flowers close after sunset.
- 3. In some plants like a mimosa, commonly known as 'touch-me-not', leaves close or fold when someone touches them.
- 4. A boy removes finger instantly after touching hot iron.

- a. All living things need air, food and water to grow and survive.
- b. All living things respond to stimuli.
- c. All living things excrete.
- d. All living things move.

46. What is common between the following symptoms?

Poor vision, loss of vision in darkness and sometimes complete loss of vision

- a. These are the symptoms of the deficiency of vitamin A.
- b. These are the symptoms of the deficiency of vitamin C.
- c. These are the symptoms of the deficiency of the mineral iron.
- d. These are the symptoms of the deficiency of the mineral iodine.

47. Which of the following pairs are wrongly classified?

P: Snakes and rats - Stay in burrows deep in the sand

Q: Snow leopard - Long ears to hear movements of predators

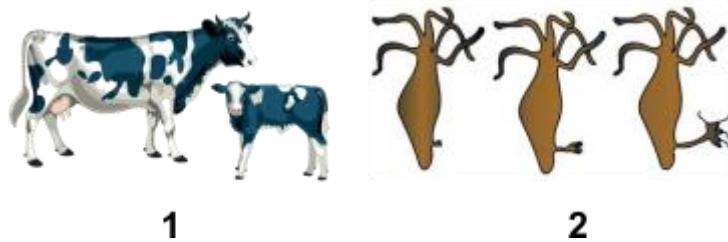
R: Mountain goats - Strong hooves for running up the rocky mountain slopes

S: Frogs - Breathe through blowholes located on the upper parts of their heads

- a. P and Q
- b. Q and R
- c. R and S
- d. Q and S

48. Observe the two pictures shown below:

Identify the similarity between them related to the characteristics of all living things:



- a. All living things excrete or give out wastes.
- b. All living things move.
- c. All living things reproduce for the maintenance of its generation.
- d. All living things respire.

49. Spot the process that can be used to separate each of the following:

1. Cashews from mixture of almonds and cashewnuts
2. Sugar crystals from a mixture of red lentils
3. Small stones from a mixture of pulses.
4. Cut and cubed apples from a bowl of fruit salad.

- a. Winnowing
- b. Hand-picking
- c. Threshing
- d. Sieving

50. In the following question, an assertion and a reason are given. Choose the correct option:

**Assertion:** Primary cells can be recharged but secondary cells cannot be recharged.

**Reason:** Chemical reactions involved in primary cells are irreversible and in secondary cells are reversible.

- a. Both assertion and reason are true and reason is the correct explanation of assertion.
- b. Both assertion and reason are true and reason is not the correct explanation of assertion.
- c. Assertion is true but reason is false.
- d. Assertion is false but reason is true.

## Answer Key

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