



# Primrose Schools

Affiliated to the CISCE Board for ICSE & ISC  
Affiliated to the Cambridge University for IGCSE, AS & A Level  
An ISO 9001:2015 Certified Institution

## NATIONAL PRIMTALENT OLYMPIAD EXAMINATIONS SCIENCE

**CLASS**  
**6**

Name :

Section :

Roll no :

### Guidelines for the Candidates

1	Please check your Name, Class and Section on the OMR sheet provided to you.
2	In case, OMR sheet with your name is missing, please fill in information about yourself in the blank sheet provided before start of exam.
3	All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
4	There is only <b>ONE</b> correct answer. Choose only ONE option for an answer.
5	To mark your choice of answers by darkening the circles in OMR sheet, use <b><u>HB Pencil or Blue/Black ball point pen</u></b> only.
6	Rough work should be done in the blank space provided in the booklet.
7	Return the OMR sheet to the invigilator at the end of the exam
8	Please fill in your personal details in space on the top of this page before attempting the paper

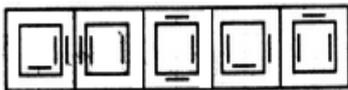
# PHYSICS

## SECTION A-LOGICAL REASONING

1. A man walks 5 km toward south and then turns to the right. After walking 3 km he turns to the left and walks 5 km. Now in which direction is he from the starting place?

- a) West
- b) South
- c) North-East
- d) South-West

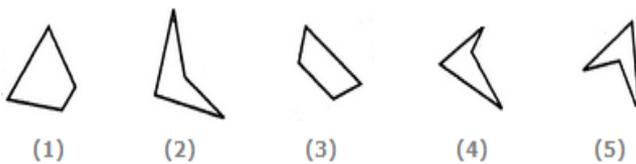
2. Choose the figure which is different from the rest.



(1) (2) (3) (4) (5)

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

3. Select the alternative which represents three out of the five alternative figures which when fitted into each other would form a complete square.



- a) 123
- b) 234
- c) 124
- d) 245

4. All the six faces of a cube are coloured with six different colours - black, brown, green, red, white and blue. Red face is opposite to the black face. Green face is between red and black faces. Blue face is adjacent to white face. Brown face is adjacent to blue face. Red face is in the bottom. Which face is opposite to green?

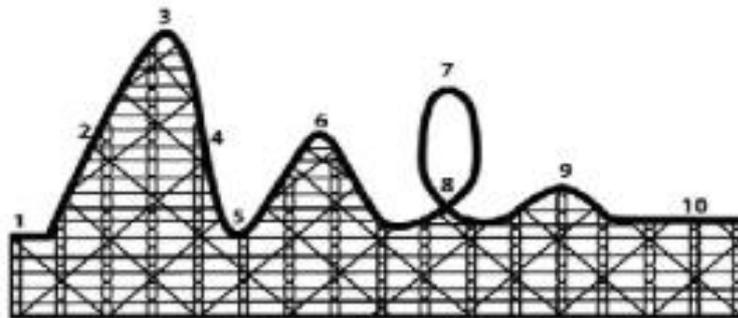
- a) Red
- b) White
- c) Blue
- d) Brown

5. Pointing to a photograph of a boy Suresh said, "He is the son of the only son of my mother." How is Suresh related to that boy?

- a) Brother
- b) Uncle
- c) Cousin
- d) Father

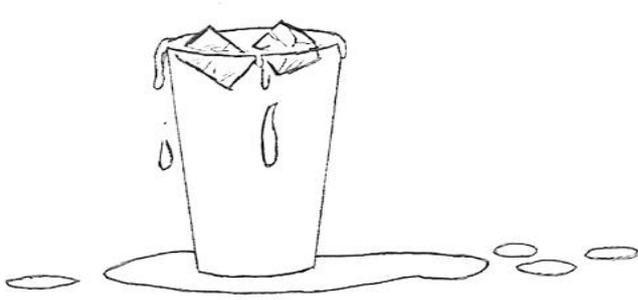
### SECTION B-EVERYDAY PHYSICS

6. At what point would the speedy roller coaster car have the most kinetic energy?



- 
- a) 6
  - b) 5
  - c) 4
  - d) 9

7. What does this picture demonstrate?



- a) Matter has mass
- b) Matter occupies space
- c) Composition of matter
- d) Molecular arrangement

8. In which of the following does the fulcrum lie between the load and the effort?



9. A ball is rolling on a road towards the north. If the direction of movement of the ball is changed to south by applying force, then what will be the direction of the frictional force acting it?

- a) South
- b) North
- c) East
- d) West.

10. What is true about shadows and images?

- a) Shadows are always black in colour.
- b) Shadows are formed because light travels in straight line.
- c) Images in a plane mirror shows the colour of the object.
- d) All the above

11. The distance between Radha's home and her school is 3250 m. Express this distance into cm.

- a) 325000cm
- b) 325cm
- c) 3.250cm
- d) 3250000cm

12. Every temperature measuring instrument makes use of a physical property of a substance in order to measure temperature objectively, which physical property is used by Mercury-in-glass thermometer?

- a) Electromotive force
- b) Volume of a fixed mass changes with temperature
- c) Resistance of a piece of metal
- d) Pressure of a fixed mass of gas at constant volume.

13. Pinhole camera is an application of \_\_\_\_\_

- a) Rectilinear propagation of light.
- b) Reflection.
- c) Refraction.
- d) Total internal reflection.

14. Spreading of fragrance of a burning incense stick in a room shows that

\_\_\_\_\_

- a) Particle of matter have space between them.
- b) Particles of matter attract each other
- c) Particles of matter are constantly moving
- d) None of the above

15. When a light ray is reflected repeatedly by a set of parallel plane mirrors, the intensity of the light ray decreases after some reflections. This is because of \_\_\_\_\_

- a) Poor reflection from mirrors
- b) Absorption of some amount of light by mirrors
- c) Dispersion of light when the rays travel through the atmosphere
- d) Scattering of light by the mirrors.

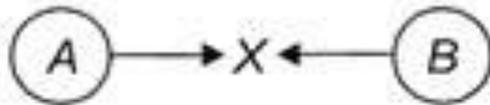
## SECTION C-ACHIEVERS SECTION

16. A piece of thread folded 6 times is placed along a 15 cm long measuring scale as shown in the figure. The length of the thread is between



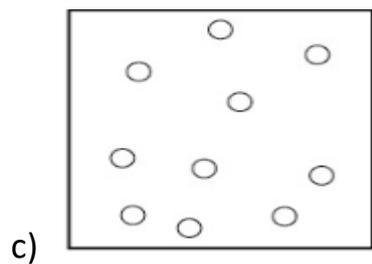
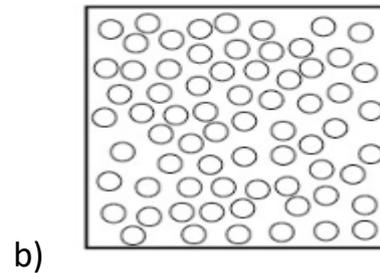
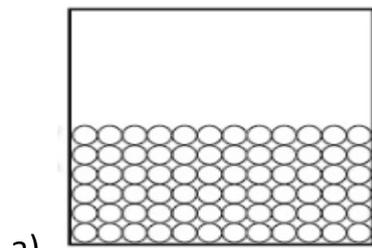
Choose the correct range in which the length falls?

- a) 0.15m-0.50 m
  - b) 0.50m-1.0m
  - c) 1.0m-1.5m
  - d) 1.5m-2.0m
17. Two identical metal balls A and B moving in opposite directions with different speeds hit each other at point X as shown in the figure. Changes will most likely appear in their
1. Shapes      2. Speeds      3. Directions      4. Volumes



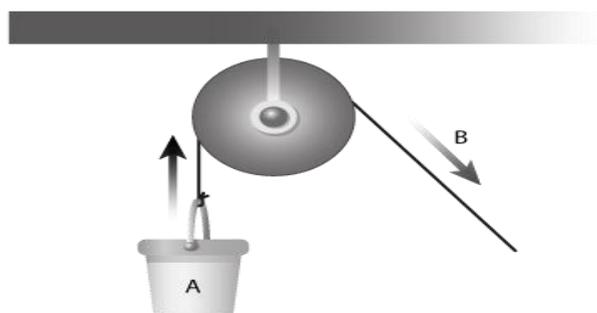
- a) 1 and 3
  - b) 2 and 3
  - c) 2 and 4
  - d) 1, 2 and 3
18. Which of the following is a scalar quantity?
- a) The effort needed to hammer a nail into wood
  - b) The braking force needed to stop a car
  - c) The heat needed to boil some water
  - d) The thrust needed to lift a rocket off the ground

19. A solid substance 'X' sublimates at  $95^{\circ}\text{C}$ . Which of the following figure represent the arrangement of particles of 'X' at  $100^{\circ}\text{C}$ ?



d) None of these

20. Look at the image of the pulley. If bucket A has a mass of 5kg, which of the following statement is true about the minimum effort force required to lift the bucket if friction is ignored?



- a) It would take 0 kg of effort to lift the bucket.
- b) It would take 2.5 kg of effort to lift the bucket.
- c) It would take 5 kg of effort to lift the bucket.
- d) It would take 10 kg of effort to lift the bucket.

# CHEMISTRY

## SECTION A - LOGICAL REASONING

21. Which number will replace the question mark?

$$\begin{array}{ccc} 6 & 9 & 4 \\ 2 \text{ (8) } 3 & 3 \text{ (12) } 6 & 7 \text{ (?) } 6 \\ 5 & 6 & 5 \end{array}$$

- a) 9
- b) 21
- c) 11
- d) 10

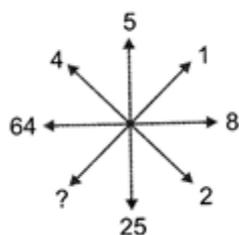
22. **8 11 21 15 18 21 22**

- a) 25 18
- b) 25 21
- c) 25 29
- d) 24 21

23. Which word does NOT belong with the others?

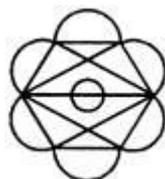
- a) Parsley
- b) Basil
- c) Dill
- d) Mayonnaise

24. Which number will replace the question mark in the following?



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

25. How many more semicircles are there than pentagons in the given figure?



- a) 4
- b) 8
- c) 2
- d) 6

### SECTION B - EVERYDAY CHEMISTRY

26. What is the smallest constituent of matter that retains its chemical identity?

- a) Atom
- b) Molecule
- c) Ion
- d) Radical

27. Both cooking oil and water are liquids at room temperature. By which of the given characteristics are they different chemically?

- a) Same colour and flammability
- b) Odour and in flammability
- c) Solubility and similar taste
- d) Odour and flammability

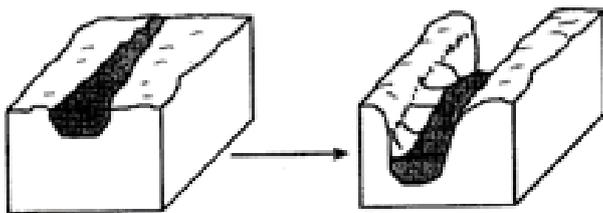
28. Which of the following is NOT a compound?

- a) Sugar
- b) Common salt
- c) Diamond
- d) Plaster of Paris

29. What lab equipment is used to measure the amount of matter in an object?

- a) Balance,
- b) Ruler
- c) Erlenmeyer flask
- d) Granulated cylinder

30. The given diagrams show the changes on land caused by a river flowing through the area for many years. Which process causes the changes on the surface?



- a) Condensation
- b) Erosion
- c) Evaporation
- d) Pollution

31. Granite is a hard material and forms from cooling magma. Granite is a type of

- a) Lava stone
- b) Igneous rock
- c) Volcanic dust
- d) Sedimentary rock

32. What is valency?

- a) The combining capacity of an element
- b) The atomicity of an element
- c) The oxidation number of an element
- d) All of the above

33. What should be used to make a cooking pot and can be used to make its handle.

- a) Glass, Plastic
- b) Rubber, Wood
- c) Aluminium, Wood
- d) Iron, Silver

34. The number of valency electrons for carbon are:

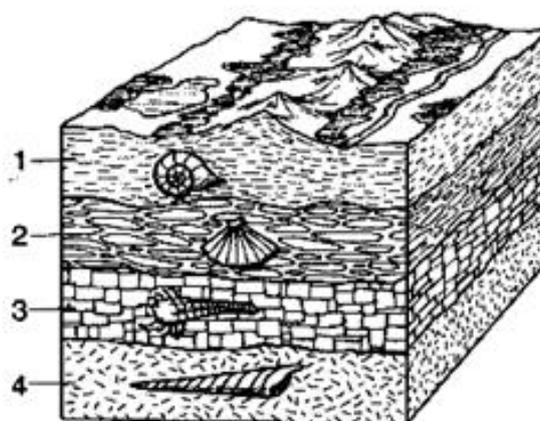
- a) 2
- b) 4
- c) 6
- d) 8

35. What lab equipment is used to accurately measure the volume of liquids?

- a) Balance,
- b) Ruler
- c) Erlenmeyer flask
- d) Graduated cylinder

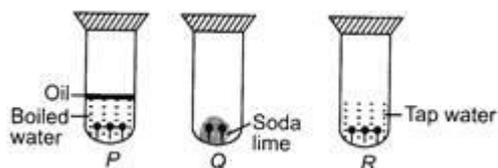
### SECTION C-ACHIEVERS SECTION

36. The diagram shows the different layers of a sedimentary rock fossils which contain some fossil fuels. Which layer contains the oldest fossils?



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

37. Observe the given experimental set-up carefully. IN which test tubes rusting of iron nails take place?



- a) P and Q only
- b) Q and R only
- c) P and R only
- d) All of these

38. To which category does antimony and arsenic belong?

- a) Metals
- b) Metalloids
- c) Non-metals
- d) Minerals

39. The total number of electrons in a nitrogen atom and a chlorine atom are 7 and 17 respectively. Find the number of valence electrons in them.

- a) 3,1
- b) 5,8
- c) 4,1
- d) 5,7

40. Which of the non-metal exist in liquid state at room temperature?

- a) Chlorine
- b) Nitrogen
- c) Bromine
- d) Hydrogen

## BIOLOGY

### SECTION A - LOGICAL REASONING

41. A class of boys stand in a long line. One boy is 9th in order from both ends. How many boys are there in the class?

- a) 17
- b) 18
- c) 20
- d) 37

42. Which of the following shows a reflection (flip) of the shaded shape across the dotted line?



43. Which of the figures shows correct fraction for  $1/3$  ?



44. Choose the odd one out.

- a) Build
- b) Separate
- c) Construct
- d) Create

45. Find the missing term 7, 9, 13, 21?

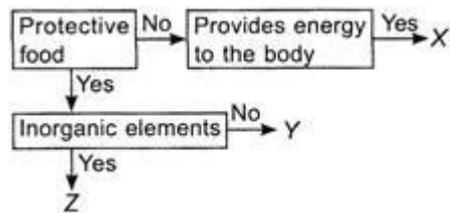
- a) 30
- b) 32
- c) 35
- d) 37

### SECTION B - EVERYDAY BIOLOGY

46. Reena took some moong seeds and soaked them overnight in water. Next day, after draining out the water, she wrapped the seeds in a wet cloth. After one day, she observed small white structures growing out of the seeds. These small white structures will develop into

- a) Stems
- b) Leaves
- c) Roots
- d) Flowers.

47. Refer to the given flow chart. Identify X, Y and Z and select the incorrect option regarding them.



- a) X is formed in leaves of plants during photosynthesis.
- b) Z is essential for the normal functioning of thyroid gland.
- c) Consumption of excess of Y can lead to obesity and heart related problems.
- d) Z helps in formation of haemoglobin in the body

DIRECTIONS: Read the passage (s) given below and answer the questions that follow.

48. Passage-1 If you look at a leaf carefully you can easily see some lines on the leaf. These lines are called veins. In some cases you can see a thick vein in the middle of the leaf. This vein is called midrib. The design made by veins is called the leaf venation. The pattern of veins of the leaf is called

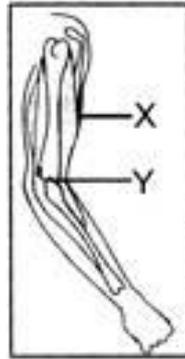
- a) Leaf venation
- b) Reticulate venation
- c) Parallel venation
- d) All of the above

49. The food items given below belongs to which of the following groups?

Beans, Peas, Pulses, Meat

- a) Fats
- b) Proteins
- c) Vitamins
- d) Carbohydrate

50. Which of the following represents X and Y in the figure given below?

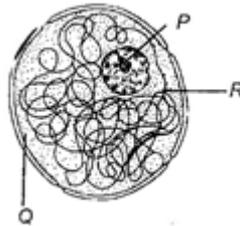


- a) X-organ, Y-muscle
- b) X-muscle, Y-joint
- c) X-joint, Y-bone
- d) X-bone, Y-organ

51. Consider the following statements: Statement 1: Green plants prepare their own food. Statement 2: Plants also respire. Which one of the following is correct about the above statements?

- a) Statement 1 is true and 2 is false
- b) Statement 2 is true and 1 is false
- c) Both 1 and 2 are true
- d) Both 1 and 2 are false

52. Refer to the given figure and select the correct statement regarding it.



- (i) P is an important site for protein synthesis.
- (ii) R transfers the characteristics of a cell that are formed during cell division.
- (iii) Q is a dense fluid like agranular substance.
- (iv) P contains DNA while R contains RNA.

- a) (i) and (ii) only
- b) (i), (ii) and (iv) only
- c) (i), (ii) and (iii) only
- d) (iii) and (iv) only

53. Sugar is the product of which one of the following process?

- a) Respiration
- b) Photosynthesis
- c) Transpiration
- d) Transportation

54. X helps in the formation of teeth and bones. Select the option that gives name of X on unscrambling.

- a) ONRI
- b) IALCCUM
- c) ULUSPHR
- d) PPECOR

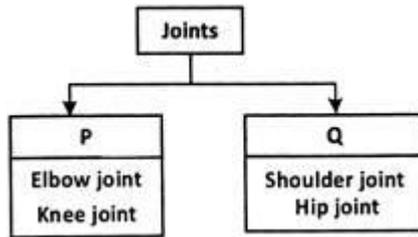
55. Saurabh's mother called him for dinner. She prepared his thali as shown in the given figure. Which essential nutrient is significantly absent in his dinner thali?



- a) Proteins
- b) Carbohydrates
- c) Fats
- d) Vitamin

## SECTION C - ACHIEVERS SECTION

56 Identify P and Q in the given chart.

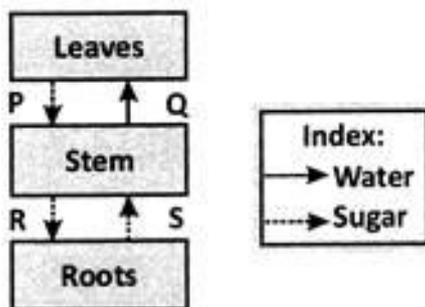


P	Q
A) gliding joint ,	pivot joint.
B) hinge ,	Ball and socket joint.
C) pivot joint ,	hinge joint.
D) Hinge joint	gliding joint.

57. Which of the following are characteristics of plants but not of animals?

- a) Made up of many cells.
- b) Cells have nuclei.
- c) Contain cytoplasm in their cells
- d) Cells have cell walls.

58. Which arrow(s), P, Q, R or S, is/are drawn wrongly?



- a) P
- b) Q
- c) R
- d) S

59. Which one of the following structures is not part of the alimentary canal?



60. There are more chances of survival of a plant if

- a) Self-pollination takes place
- b) Cross pollination takes place
- c) Inverse pollination takes place
- d) Asexual reproduction takes place