



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
7

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 ONE correct answer. Choose only ONE option for an answer.
5	To mark your choice of answers by darkening the circles in OMR sheet, use <u>HB Pencil or Blue/Black ball point pen</u> 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. Choose the alternative which closely resembles the mirror image of the given combination.



ANS43Q12

(1) AN2P3Q1S

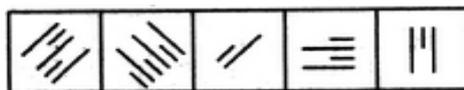
(2) S1Q3P2NA

(3) 2NA3PQ1S

(4) 1S2P3Q1S

- A) 1
- B) 2
- C) 3
- D) 4

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



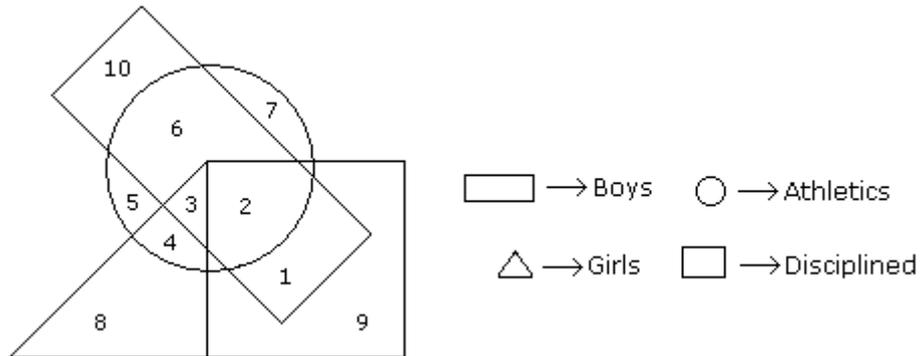
(1) (2) (3) (4) (5)

- A) 1
- B) 2
- C) 3
- D) 4

3. Look at this series: 2, 6, 18, 54, What number should come next?

- A) 108
- B) 148
- C) 162
- D) 216

4. In the following diagram the boys who are athletic and are disciplined are indicated by which number?



- A) 10
- B) 2
- C) 6
- D) 1

5. Pointing to a girl, Sandeep said, "She is the daughter of the only sister of my father." How is Sandeep related to the girl?

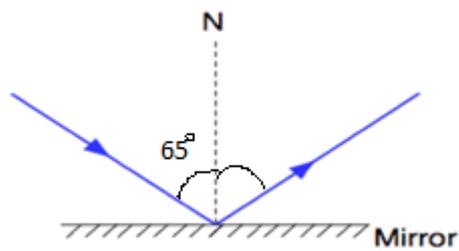
- A) Uncle
- B) Cousin
- C) Father
- D) Grandfather

SECTION B - EVERYDAY SCIENCE

6. Bob is a boxer and hits his opponent with a knockout punch. His hand has a mass of 9.7 kg. He accelerates his hand at 4.5 meters per second. How much force did he hit his opponent with?

- A) 43.65N
- B) 14.2N
- C) 2.16N
- D) .46N

7. Find the angle of incidence, from the diagram given below.



- A) 115°
- B) 65°
- C) 25°
- D) 90°

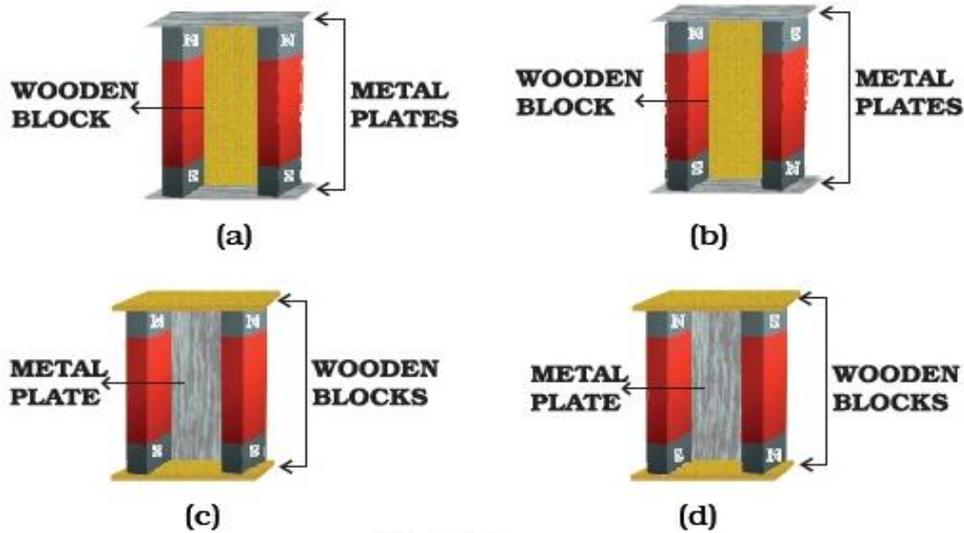
8. The volume of a substance is 25cm^3 and its mass is 100g . If the density of water is 1.00g/cm^3 . Will the substance sink or float in water?

- A) sink partially
- B) float
- C) sink completely
- D) None of these

9. In a class 1 lever (like see- saw) the movement of the effort is _____.

- A) Opposite to the direction of the load
- B) In the same direction as the load
- C) Independent of the direction of load
- D) Perpendicular to the direction of the load

10. The arrangements to store magnets is shown by figures (a), (b), (c), (d) . Which one of them is the correct arrangement?



- A) b
- B) a
- C) d
- D) c

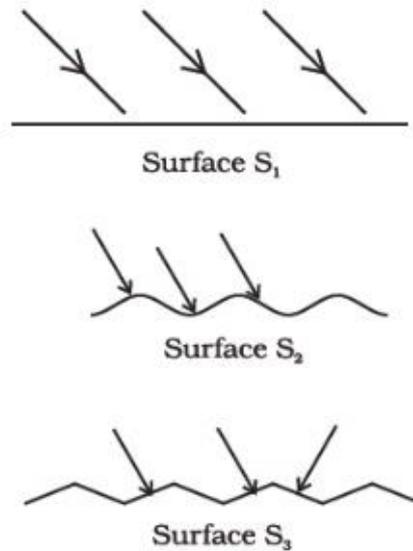
11. Rahul and Rena were given with one mirror each by their teacher. Rahul found his image to be erect and of the same size whereas Rena found her image erect and smaller size. This means that the mirrors of Rahul and Rena are, respectively

- A) Plane mirror and concave mirror
- B) Concave and convex mirror
- C) Plane mirror and convex mirror
- D) Convex mirror and plane mirror.

12. _____ is the average kinetic energy of the individual particles of a substance.

- A) Matter
- B) Heat
- C) Energy
- D) Temperature

13. Light is falling on surface S_1 , S_2 , S_3 as shown in the figure. Surfaces on which the angle of incidence is equal to angle of reflection is/are?



- A) S_1 only
- B) S_2 and S_3 only
- C) S_1 and S_2 only
- D) all the three surfaces

14. When using Kelvin scale, what is the boiling point of water?

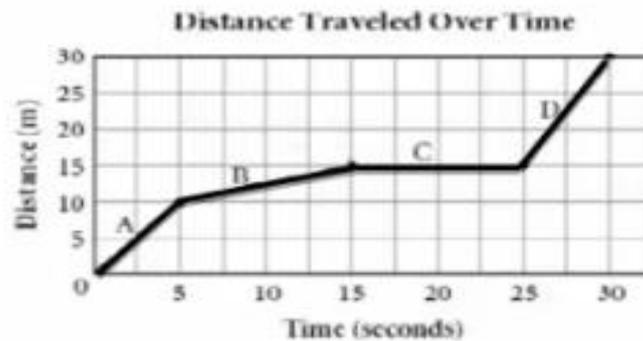
- A) 100K
- B) 0K
- C) 273K
- D) 373K

15. Oscillations are set in a simple pendulum whose length is 2m and mass of the bob is 2kg. Its time period _____.

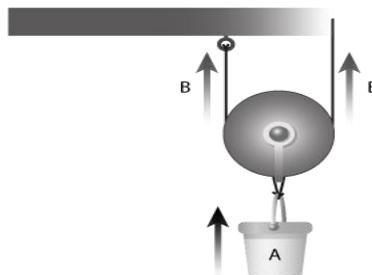
- A) is always constant
- B) Increases slowly
- C) Decreases slowly
- D) First increases then decreases

SECTION C - HIGHER ORDER THINKING

16. The graph below shows the distance a student travelled over time in the hall. What was the average speed of the student from 15 seconds to 30 seconds?



- A) 4m/s
B) 1m/s
C) 100m/s
D) 5m/s
17. Look at the image of the pulley. If bucket A has a mass of 5 kg, which of the following statement is true about the minimum effort force required to lift the bucket if friction is ignored?

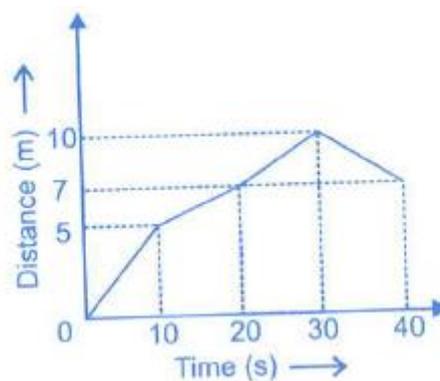


- A) It would take 0 kg of effort to lift the bucket.
B) It would take 2.5 kg of effort to lift the bucket.
C) It would take 5 kg of effort to lift the bucket.
D) It would take 10 kg of effort to lift the bucket.

18. How many bricks, each measuring 25cm x 11.25cm x 6cm, will be needed to build a wall 8m x 6m x 22.5 cm?

- A) 5600
- B) 6000
- C) 6400
- D) 7200

19. Study the distance-time graph of a toy car given here and choose the incorrect statement from the following.



- A) The toy car is fastest during first 10 seconds
- B) The toy car is slowest in between 10 and 20 seconds.
- C) Distance travelled during last 10 seconds is 3m
- D) Total distance covered by the toy car is 10m.

20. The diagram below shows some passengers sitting in the moving bus and a person, a tree and a house standing outside. With reference to the diagram, choose the correct option.



- i) For a passenger sitting within the bus the tree and house appear to be moving in backward direction relative to a co-passenger
- ii) For a person standing on the road, the bus seems to be moving in the forward direction relative to tree and house
- iii) For a passenger sitting within the bus, a person standing on the road seems to be moving in forward direction relative to a co-passenger.
- A) Only (i) and (ii)
- B) Only (ii) and (iii)
- C) Only (i) and (iii)
- D) All (i), (ii) and (iii)

CHEMISTRY

SECTION A - LOGICAL REASONING

21. What comes next in the series?

KBJ, LCK, MDL, NEM, _____

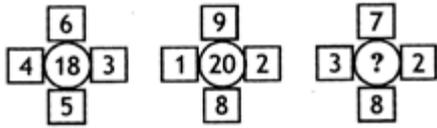
- A) OEP
- B) OFN
- C) MEN
- D) PFQ

22. What comes next in the series below?

(61) (53) (45) (37) (29) (?)

- A) 23
- B) 21
- C) 19
- D) 16

23. Find the values that replace the question mark.



- A) 15
- B) 20
- C) 25
- D) 30

24. Pointing towards a man in the photograph, Priya said, 'He is the son of the only son of my grandmother'. How is man related to Priya?

- A) Cousin
- B) Nephew
- C) Brother
- D) Son

25. In a certain code, PLEADING is written as OKDZCHMF. How is SHOULDER written in that code?

- A) KCDQTIPV
- B) RNGTHCKDQ
- C) RGNTKCDQ
- D) TIPVQDCK

SECTION B - EVERYDAY SCIENCE

26. In a chemical reaction, ----- is transferred from one atom to another.

- A) Electrons
- B) Protons
- C) Neutrons
- D) Atomic number
- E) None of these

27. In the chemical reaction between sodium and chlorine, which one of the following elements is positively charged and called positive ions?

- A) Sodium
- B) Chlorine
- C) Sodium chloride
- D) All of these
- E) None of these

28. Which of the following statement is correct about the give changes?

- (i) Drawing copper into a wire
- (ii) Breaking of a glass
- (iii) Heating an iron nail till red hot
- (iv) Inflating a basketball

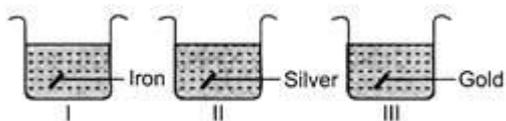
A) (i) and (ii) are chemical changes while (iii) and (iv) are physical changes.

B) (ii) and (iii) are chemical changes while (i) and (iv) are physical changes.

C) All are physical changes.

D) All are chemical changes.

29. Raghul took few wire pieces made up of different metals and placed them in blue solution of copper sulphate. What will be the changes in the colour of the solutions present in beakers I, II and III?



A)

I	II	III
Green	Blue	Green

B)

I	II	III
Blue	Green	Green

C)

I	II	III
Green	Blue	Blue

D)

I	II	III
Blue	Blue	Blue

30. Fill in the blanks by choosing an appropriate option. When sugar is dissolved in water, it undergoes a (i)_____ change but if sugar is heated in a test tube over the Bunsen burner flame, it first melts, turns brown and finally turns (ii)_____. The new substance formed is (iii)_____ and the change is a (iv)_____ change.

A)

(i)	(ii)	(iii)	(iv)
Physical, reversible	Black	Charcoal	Chemical, irreversible

B)

(i)	(ii)	(iii)	(iv)
Physical, irreversible	Black	Coal	Chemical, irreversible

C)

(i)	(ii)	(iii)	(iv)
Physical, irreversible	Red	Charcoal	Chemical, reversible

D)

(i)	(ii)	(iii)	(iv)
Physical, reversible	Red	Coal	Chemical, reversible

31. Which of the following atoms have a valency equal to zero?

- A) Hydrogen
- B) Lithium
- C) Neon
- D) Oxygen

32. What type of mixture is steel?

- A) Solid-liquid heterogeneous mixture
- B) Solid-solid heterogeneous mixture
- C) Solid-solid homogeneous mixture
- D) Pure substance

33. An element has an atomic number 20. How many electrons will be present in K, L, M and N shells of its atom?

- A) 2,8,6,4
- B) 2,8,7,3
- C) 3,7,7,3
- D) 2,8,8,2

34. Identify the element having two electrons in the K shell of its atom.

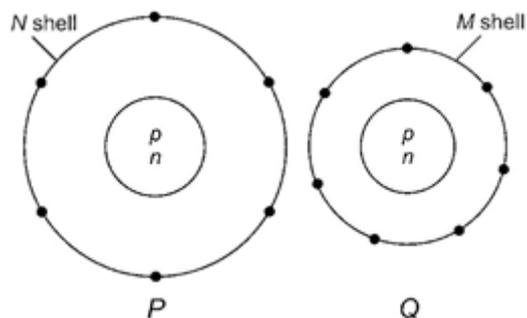
- A) Hydrogen
- B) He+
- C) Helium
- D) Deuterium

35. Identify a pure substance from the following?

- A) Steel
- B) Magnalium
- C) Ammonia
- D) Gun powder

SECTION C – ACHIEVERS SECTION

36. Electron distribution of two elements P and Q in their outermost shell is shown below. Atomic numbers of P and Q are respectively.



- A) 9, 17
- B) 15, 17
- C) 24, 17
- D) 17, 24

37. What is the formula of rust?

- A) Fe_3O_4
- B) Fe_2O_3
- C) FeO
- D) None of these

38. What happens when salt dissolved in water is heated?

- A) There is an increase in the boiling point.
- B) There is no change in the boiling point.
- C) There is a decrease in the boiling point.
- D) All of the above

39. Non-reacting gases have the tendency to mix with each other. What is this phenomenon called?

- A) Evaporation
- B) Diffusion
- C) Effusion
- D) Explosion

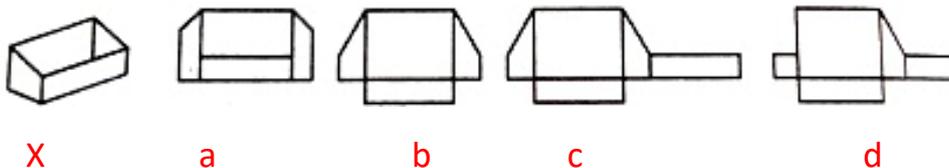
40. Kirti kept a metal spoon in a glass jar filled with pickle for a few days. She observed that there were holes in the spoon. What could be the possible reason for this?

- A) Oil present in pickle dissolves the metal.
- B) Oil present in pickle liberates a gas in which metal gets dissolved.
- C) Metal reacts with acid present in pickle to form salt hence, metal gets dissolved.
- D) The glass reacts with metal to give acid which dissolves the metal.

BIOLOGY

SECTION A - LOGICAL REASONING

41. Which of the following figures (a), (b), (c) and (d), when folded along the lines, will produce the given figure (X)?



42. Which of the following diagram indicates the best relation amongst the following?

Page, Chapter, and Book



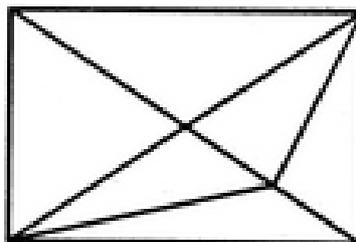
43. Observe the given figure:



Which of the following helps the girl in sipping the drink from the bottle using a straw?

- A) Bottle pressure
- B) Air pressure
- C) Liquid pressure
- D) Chemical energy.

44. Find the number of triangles in the given figure.



A) 11

B) 13

C) 15

D) 17

45. Three years ago Raju was 8 years younger than Sanju. What will be the difference between their ages after 5 years?

A) 8 years

B) 7 years

C) 12 years

D) 15 years

SECTION B - EVERYDAY SCIENCE

46. Which of these animals can hear very soft sound?

A) Polar

B) Elephant

C) Red eyed frog

D) Lizards.

47. Group of organisms that closely resemble each other and freely interbreed in nature, constitute a -----

A) species

B) genus

C) family

D) taxonomy

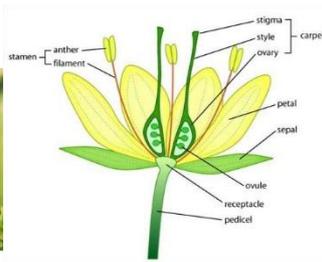
48. Which of the following statements is correct? In flowering plants:

- A) pollination can take place without fertilisation
- B) fertilisation can take place without pollination
- C) pollination and fertilisation are the same.
- D) pollination and fertilisation must occur at the same time

49. Which of the following labelled figure is\are NOT an example of vegetative propagation?



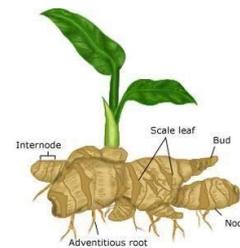
P



Q



R



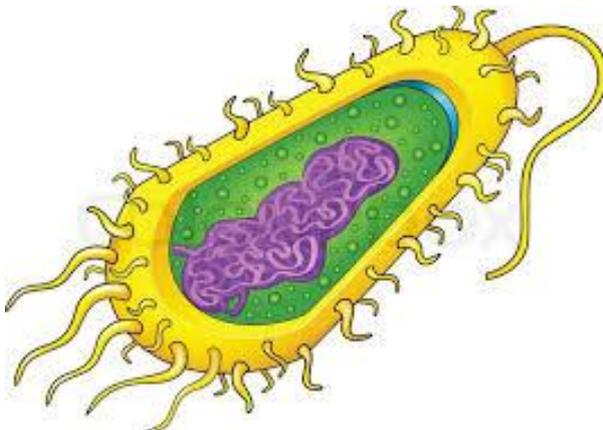
S

- A) P only.
- B) Q only.
- C) R and S only.
- D) P, Q and R only.

50. Agar is commercially obtained from -----.

- A) red algae
- B) green algae
- C) brown algae
- D) blue-green algae

51. A bacterial cell lacks -----



- A) flagella
- B) chromosome
- C) cell wall
- D) nucleus

52. Sweat, saliva, tears and mucus have -----

- A) lysosomes
- B) chromosomes
- C) ribosome
- D) Golgi bodies

53. Second part of an organisms name according to 'binomial nomenclature' indicates; -----

- A) species name
- B) Genus
- C) Descendent name
- D) Ancestral name

54. Considering five kingdom classification system, unicellular eukaryotic, prokaryotic and multicellular eukaryotic are considered as -----

- A) shoot and root systems
- B) cellular organization levels
- C) modes of nutrition
- D) green plants classification

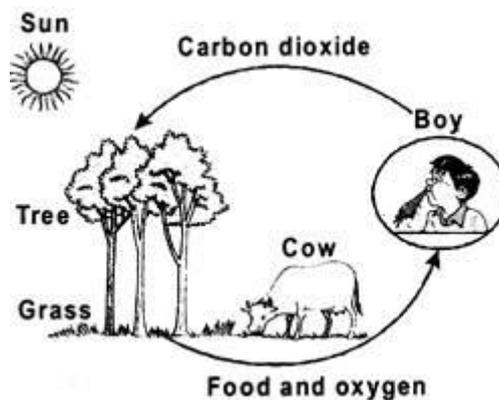
55. How do sponges feed?



- A) Filter microorganisms from water brought in through pores
- B) Use nematocysts to capture small prey
- C) Extract decaying plant material form sediment
- D) Absorb Hydrogen Sulfide directly from the water.

SECTION C - ACHIEVERS SECTION

56. What does the figure given below represent?



- A) Interdependence between plants.
- B) Interdependence between plants and animals.
- C) Interdependence between animals.
- D) Interdependence between abiotic factors.

57. Which is exclusively a marine phylum?

- A) Echinodermata
- B) Porifera
- C) Cnidarians
- D) Protozoa

58. Pranav does not like to eat fruits and vegetables. Which of the following deficiency diseases may Pranav suffer from?

- A) Protein deficiency disease.
- B) Carbohydrate deficiency.
- C) Vitamin deficiency disease.
- D) Fat deficiency disease.

59. In which one of the following sets of animals do all the four give birth to young ones?

- A) Platypus, Penguin, Bat, Hippopotamus
- B) Shrew, Bat, Cat, Kiwi
- C) Kangaroo, Hedgehog, Dolphin, Loris
- D) Lion, Bat, Whale, Ostrich

60. Which one of the following is least likely to prevent contamination of food by houseflies?

- A) A well-fitting dustbin lid.
- B) Swatting flies.
- C) Covering food with cling-film.
- D) Efficient sewage disposal.