NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

Navars Edutech

PREVIOUS YEAR QUESTION PAPER

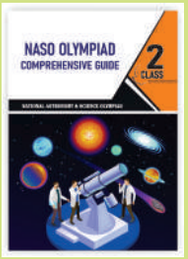
6th CLASS

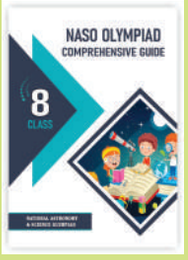
FEATURES

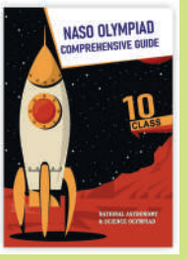
FEATURES

- Naso last 5 years question paper's.
- Answer keys for all the question papers.
- OMR Sheets at the end of all question papers to practice.
- Sample revision question paper for more practice.
- Recommended for all Science Olympiads / Competitions.

NASO OLYMPIAD COMPREHENSIVE GUIDE







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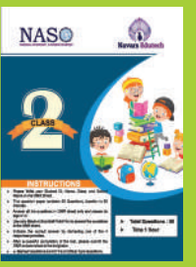
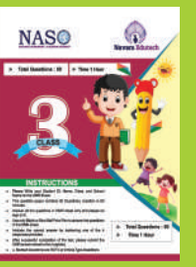
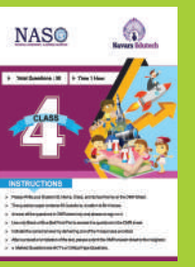
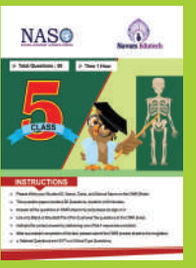
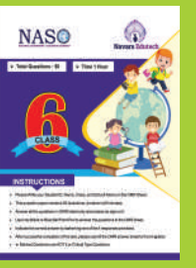
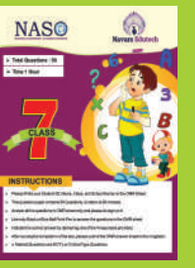


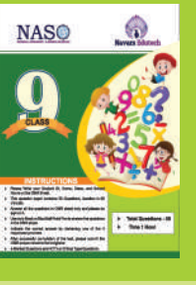




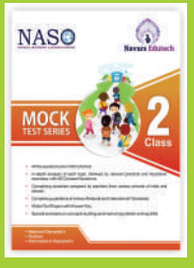


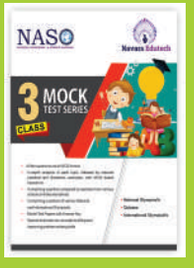


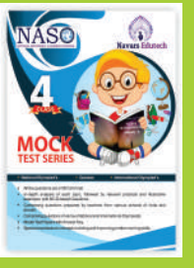


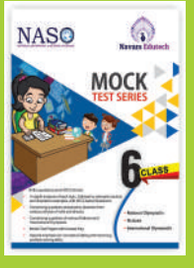


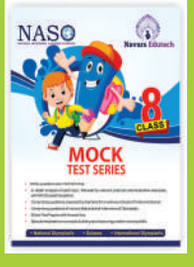
NASO MOCK TEST SERIES

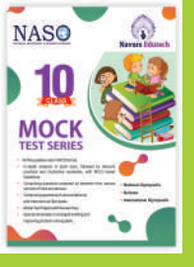












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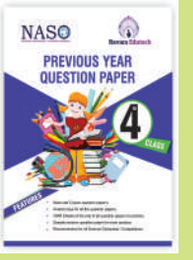
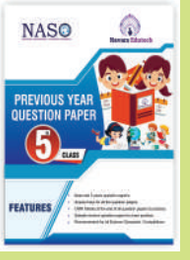
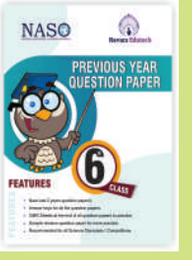
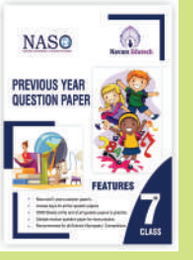
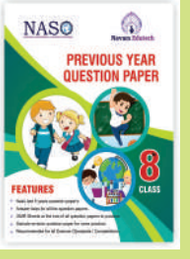
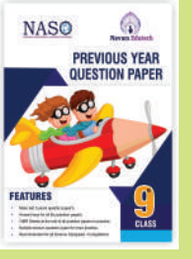


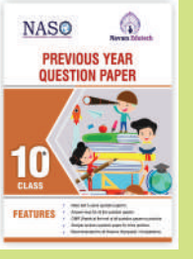




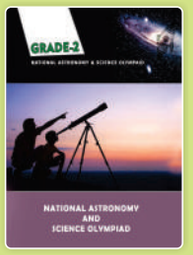


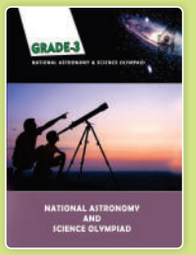


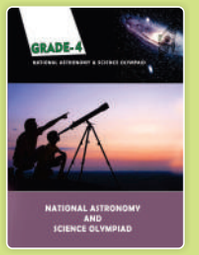


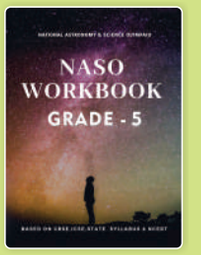


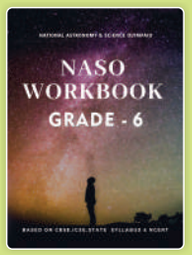
NASO WORKBOOK

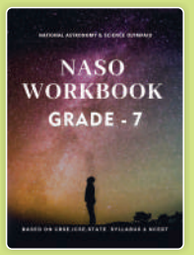


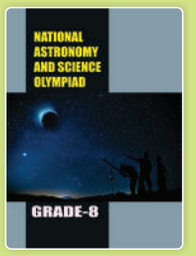


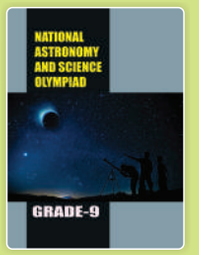


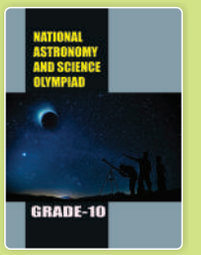




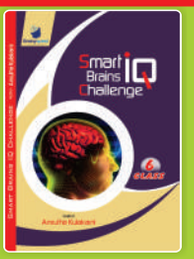


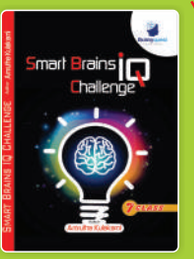


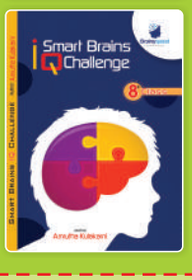


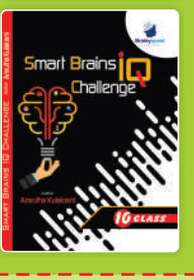


SMART BAIN IQ PUZZLE

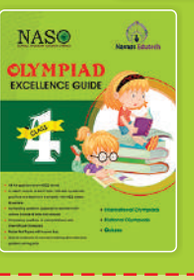


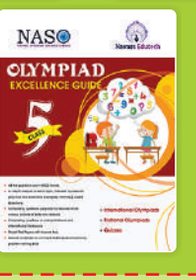






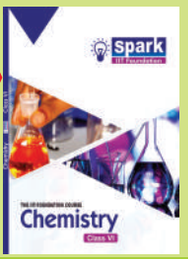
NASO EXCELLENCE GUIDE

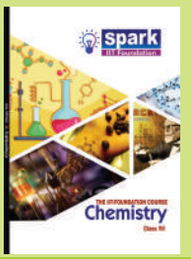


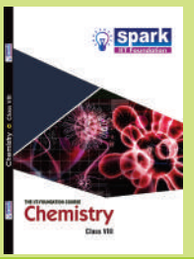


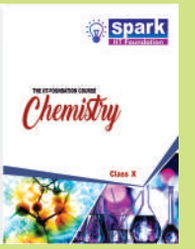
SPARK IIT FOUNDATION

CHEMISTRY

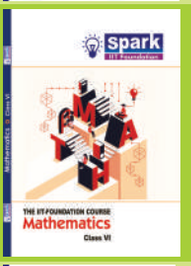


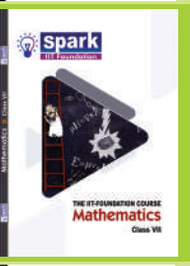


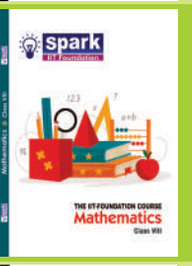


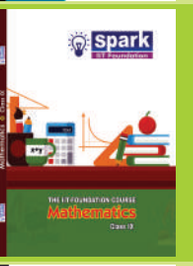


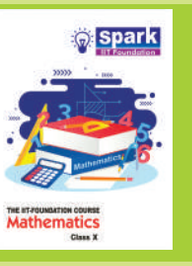
MATHEMATICS











PHYSICS

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NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

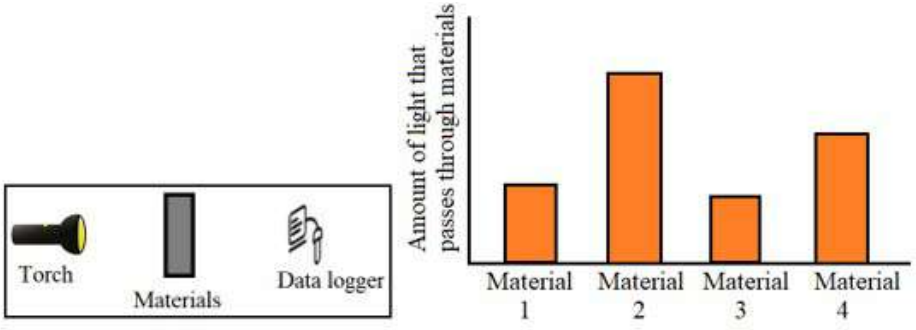
CLASS 6

Duration : 60 Minutes **Max Marks : 50**

GENRAL INSTRUCTIONS

1. Please collect the Answer Sheets (OMR) from the invigilator.
2. Please Write your Student ID, Name, Class, and School Name on the OMR Sheet.
3. This question paper contains 50 Questions, duration is 60 minutes.
4. Answer all the questions in OMR sheet only. And please do sign on it.
5. Use only Black or Blue Ball Point Pen to answer the question in OMR sheet.
6. Indicate the correct answer by darkening on the 4 responses provided.
7. After successful completion of the test please submit the OMR answer sheet to the invigilator.

In order to measure the amount of light that can pass through four different materials, a student conducted an experiment. He used a device to store the data of amount of light that passed through four objects and plotted the graph given here.



1. Through which of the following does light not pass very easily?

   A. Material A. B. Material B.
   C. Material C. D. Material D.

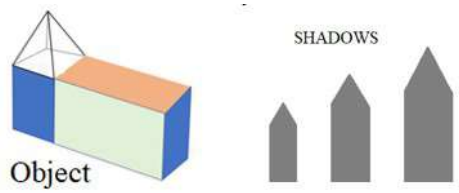
2. Which of the flowing options can be placed in place of material A?

   A. Wood. B. Rubber.
   C. Sheer piece of cloth. D. Plastic plate.

3. Which of the following is best suited for Material B?

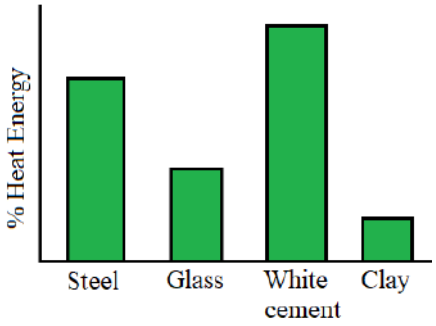
   A. Wood. B. Rubber.
   C. Sheer piece of cloth. D. Glass pane.

4. A light source was lit on an object which formed a shadow. Study the shadows below and identify the correct statement from the table.



Statement 1	There is a change in the direction of the light source and the distance between the object and the light source.
Statement 2	There is a change in the direction of the light source but the distance between the object and the light source remains unchanged.
Statement 3	There is a change in the distance between the object and the light source but the direction of the light source remains unchanged.
Statement 4	There is no change in the direction of the light source and the distance between the object and the light source.

5. The given chart shows the percentage of heat energy reflected by four different materials. What should be used as a roof covering in order to keep the house cool in the hot regions?



A. Steel plates.
B. Clay bricks.
C. Glass panes.
D. White cement

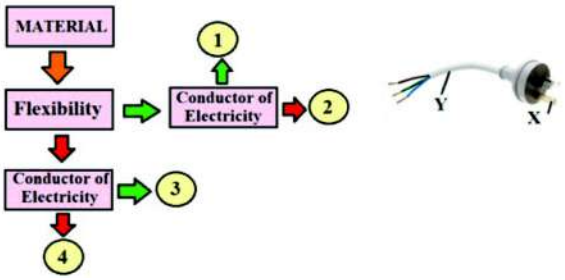
6. The bower bird mostly uses straws to build its nest. A cat very easily destroyed the nest.

Identify the property/properties of straw that best explains why the cat was able to destroy the straw nest?

1: Light.
2: Cannot be scratched easily
3: Can break easily
4: Can bend

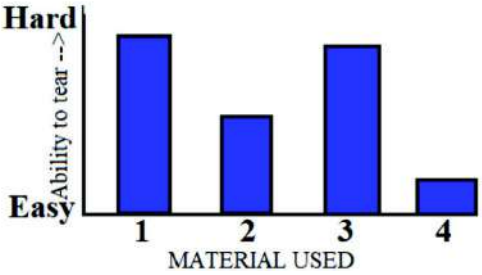
A. 1 only.
B. 2 only.
C. 2 and 4 only.
D. 1, 2 and 3 only.

7. The diagram shows a 3-pin plug connected to a piece of wire. Which of the materials, 1, 2, 3 or 4 are suitable for making the parts of the plug labelled as X and Y?



A. X: Material 1, Y: Material 2
B. X: Material 4, Y: Material 1
C. X: Material 3, Y: Material 2
D. X: Material 4, Y: Material 2

8. The strength of 4 different types of paper (cardboard paper, tissue paper, drawing block and foolscap paper) is shown in the graph below. Identify the option which could be material 3?

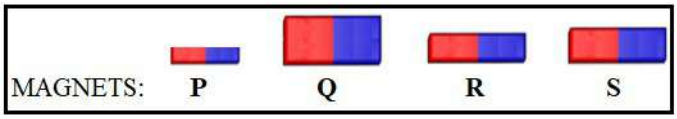


A. Cardboard paper
B. Tissue paper
C. Drawing block
D. Foolscap paper

9. In an experiment,four magnets labelled P, Q, R and S are placed 10 cm away from a pile of paper clips. The table below shows the number of paper clips attracted by the magnets P, Q, R and S.

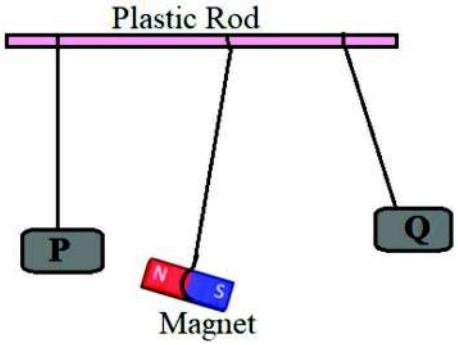
MAGNET	NUMBER OF PAPER CLIPS ATTRACTED
P	15
Q	15
R	20
S	17

Which of the following statement(s) is/are most likely to be correct?



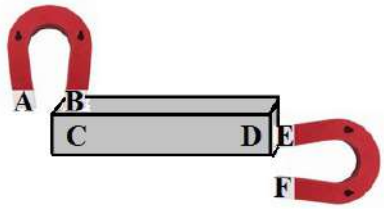
A. R is the strongest magnet.
B. Magnet S is the weakest magnet.
C. Magnet P is as strong as magnet Q.
D. Magnet Q is stronger than magnet S.

10. Two pieces of unknown metals, P and Q are hung from a plastic rod along with a bar magnet as shown in the diagram. Identify the correct statement.



A. P and Q both are magnets.
B. P is a magnet but Q is a non-magnet metal.
C. P is made of iron and Q is made of aluminum.
D. P is made of magnetized copper and Q is made of magnetized steel.

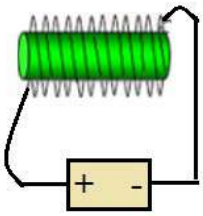
11. Look at the given diagram and identify thecorrect statement(s) about the poles of the magnets?

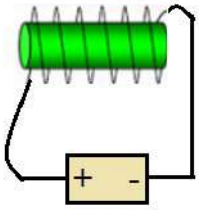


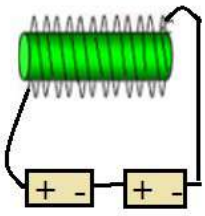
1	B and E are like poles.
2	F will repel D and be attracted to C.
3	E will repel C and be attracted to B.
4	A will attract F

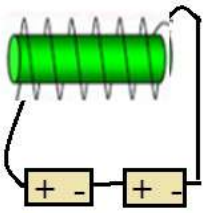
A. 1 only B. 2 and 3 C. 3 and 4 D. 1, 2 and 4

12. Which set-up should be used by Suman in order to make the strongest electromagnet?

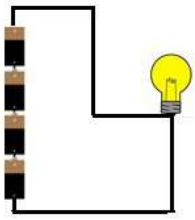
A. 

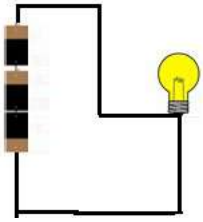
B. 

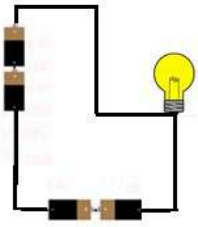
C. 

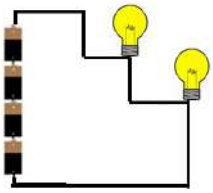
D. 

13. Study the electric circuits carefully. The batteries used in the given set-up are brand new and of 1.5 volts. The voltage of the bulbs is also same. Identify the set ups in which the bulb will be of the same brightness?

A. 

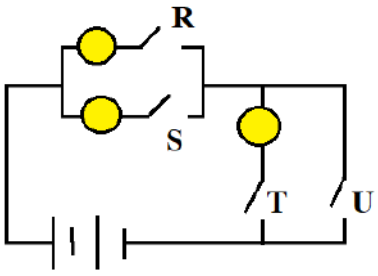
B. 

C. 

D. 

A. B and C only B. A and C only
C. C and D only D. A and D only.

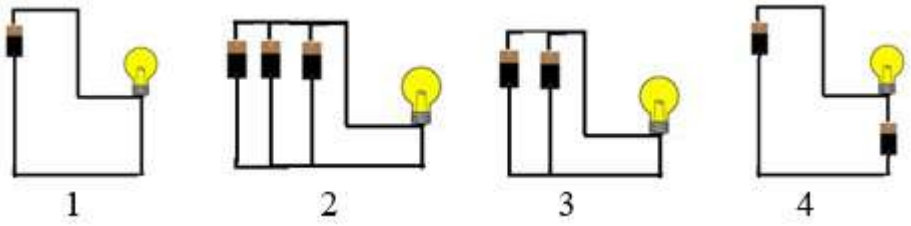
14. In the circuit diagram above, which switches must be closed for 2 bulbs to light up?



1	Switch T and U
2	Switch R and S
3	Switch R and T
4	Switch S and T

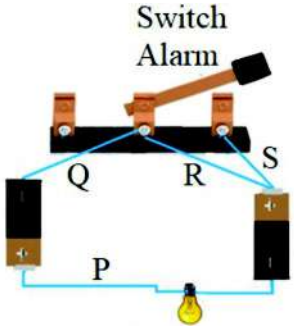
A. 2 and 3 only
B. 1 and 2 only
C. 1 and 4 only
D. 3 and 4 only

15. A studentuses identical batteries, bulbs and wires and sets up four different electrical circuits.In which of the circuits given below will the bulbs be of equal brightness?



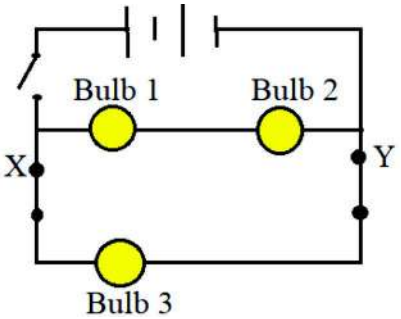
A. 1 and 4 only
B. 3 and 4 only
C. 1, 2 and 3 only
D. 1, 2, 3 and 4.

16. Samar discovered that the bulb of the electric circuit shown below lighted up even when the switch was opened. Which wire should Samar remove from this circuit if he wants to use the switch to control the bulb?



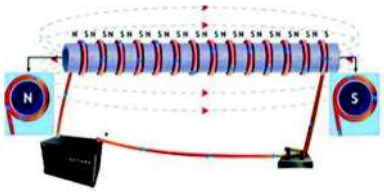
A. Wire P
B. Wire Q
C. Wire R
D. Wire S

17. The given circuit has two identical bulbs, two batteries and a switch. Bulb 1 and Bulb 2 light up with equal brightness when the switch is closed.
What will happen to Bulb 1 when bulb 3 is connected to the circuit at X and Y?



A. It will become brighter than before.
B. It will become dimmer than before.
C. It will light up with the same brightness.
D. It will not light up.

18. What type of change is magnetizing of an iron rod?



A. Physical change
B. Chemical change.
C. Visible change.
D. Technical change.

19. Rita mixed pieces of chalk with water. How many new substances will she observe after some time?

A. 2
B. 1
C. 4
D. 0

20. What type of change is gradually disappearing of moth balls in a closet?

A. Physical change.
B. Chemical change.
C. Visible change.
D. Technical change.

21. Find out the cases in which the heat energy is given out?

1. When water vapor condenses to water
2. When water freezes into ice
3. When ice melts
4. When water boils

A. 1 and 2
B. 2 and 3
C. 3 and 4
D. 1 and 4

22. Identify food stuffs having low protein content per 100 gram of edible portion?

A. Potato
B. Cow milk
C. Honey
D. Bread

23. Luke placed some food item on a piece of paper. It left oily translucent patch on paper. What does it show?

A. Presence of carbohydrates in the food item.
B. Presence of fats in the food item.
C. Presence of vitamin in the food item.
D. Presence of minerals in the food item.

24. The colour changes to violet on adding two drops of copper sulphate solution and ten drops of caustic soda solution to a food item. What does it show?

A. Presence of carbohydrates in the food item.
B. Presence of fats in the food item.
C. Presence of vitamin in the food item.
D. Presence of minerals in the food item.

25. Which of the following is a form of oxygen with 3 oxygen atoms in each molecule?

A. Carbon di oxide.
B. Ozone.
C. Oxygen.
D. Carbon monoxide.

26. What does the condition in which a layer of warmer air prevents polluted air from rising and escaping called?

A. greenhouse effect
B. global warming
C. temperature inversion
D. Earthquake.

27. 'X' is an indoor air pollutant that has the properties mentioned in the table:

Colorless gas.
Odorless gas.
Forms when wood, coal, oil or gas is completely burned.

A. cigarette
B. smoke
C. carbon dioxide
D. carbon monoxide

Given table provides information on three different types of organisms, X, Y and Z.

ORGANISM	INFORMATION
X	Feeds only at night. Feeds on small animals.
Y	Has a weak stem. Insects help in pollination of its flowers.
Z	Lives in the hot desert. Walks on sandy ground.

28. Which option shows the correct adaptations of organism X?

A. has a curved beak and has hollow bones.
B. has good night vision and has hollow bones.
C. has sharp claws and has good night vision.
D. has a streamlined body and has sharp claws.

29. Which option shows the correct adaptations of organism Y?

A. has needle leaves and has a swollen stem.
B. has thorns in its stem and has sweet smelling flowers.
C. has bright flowers and has tendrils.
D. has small dull flowers and has tendrils.

30. Which option shows the correct adaptations of organism Z?

A. has padded feet and sweats very little.
B. has sharp claws and drinks lot of water.
C. drinks and urinates little and has padded feet.
D. sweats very little and has padded feet

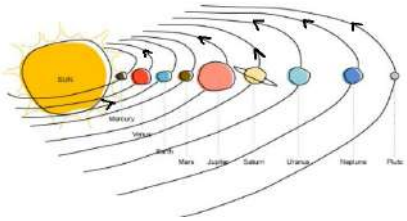
31. Identify the statement which accurately describes the view of the solar system first developed by the Greeks?

A. Planets are stationary
B. Planets rotate around the sun
C. Planets rotate around the earth
D. Planets are stationary, but stars rotate

32. In 1609, Galileo discovered the telescope.What did this tool help him in discovering?

A. He discovered a moon orbiting the planet earth.
B. He discovered the orbiting moons of the planet Jupiter.
C. He discovered other stars around our solar system.
D. He discovered that the shape of the orbit of the planets is elliptical.

33. Raman has drawn a picture of solar system. What is wrong with this picture?



A. The orbits should be circular in shape.
B. The sun should be in the centre of this solar system model.
C. The movement of planets should be in anticlockwise direction.
D. There should be 8 planets in our solar system, not 9.

34. Identify the planet by looking at the features and information given in the table:

• **Type of Planet: Terrestrial (has a hard rocky surface).**
• **Temperature: -125 to +130 degrees F.**
• **Year: 365.3 Days and Day: 23 hours and 56 minutes.**
• **Distance from the Sun: 3rd planet from the sun, 93 million miles.**

A. Mars.
B. Venus.
C. Mercury.
D. Earth.

35. We can clearly see patches on the moon with naked eyes. These are actually craters. What created these craters?

A. Satellites
B. Meteoroids
C. Human satellites.
D. Equipment from human exploration of the moon.

36. A student observed the moon from her bedroom window for one week and drew the pictures on a paper. It looked somewhat as is shown in the diagram below:
How can this stage of the moon phase cycle be described as?

A. Waning
B. Wasting
C. Waxing
D. Warming

37. Most of the planets in our solar system have moon/s of their own. What is the position of earth's moon as compared with other moons?

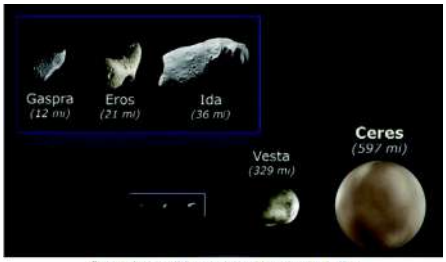
A. Earth's moon is the second largest moon in the solar system.
B. Earth's moon is the fourth largest moon in the solar system.
C. The largest moon in the solar system is our Earth's.
D. The fifth largest moon in the solar system is our Earth's.

38. Identify the type of asteroid looking at the specifications given below:

- They share an orbit with a planet or a moon
- The majority of these asteroids orbit the sun with Jupiter.
- These are the groups of asteroids outside the asteroid belt.
- Distance from the Sun: 3rd planet from the sun, 93 million miles.

A. Trojan asteroids.
B. Ceres asteroids.
C. Vesta asteroids.
D. Pallas asteroids.

39. Some asteroids are so large that they are considered minor planets.
Which out of these four is by far the largest asteroid?



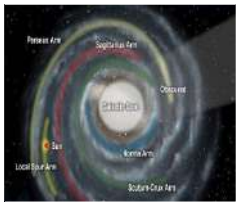
Several asteroids compared by size including Ceres (the largest asteroid) and Vesta
Source: NASA, ESA, STScI

A. Ceres.
B. Vesta.
C. Pallas.
D. Hygiea.

40. This craft was the first to land on Mars and to carry out experiment which, for the first time, suggested that life might be possible on Mars.
Which space craft was that?

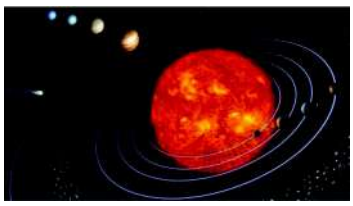
A) NASA's Viking mission. B) The Rosetta mission.
C) NASA's Parker Solar Probe. D) Apollo 13.

41. The Milky way galaxy has a number of long arms that are spiraling around the centre. What are the arms generally made of?



A. A cluster of old stars.
B. A cluster of new stars.
C. A cluster of different gases.
D. A bunch of meteors and asteroids.

42. The age of the solar system is derived from the study of the oldest accessible material around like the meteorites.How old is our solar system?



A. 4.6 billion years B. 13.8 billion years
C. 6,000 years D. 15,000 years

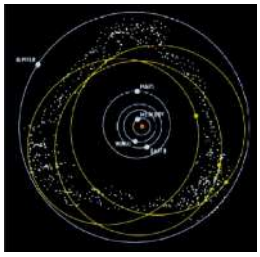
43. What do we call the massive explosion of a star?

A. Pulsar. B. Black hole.
C. Supernova. D. Nebula.

44. The gravitationally bound system of the Sun and the objects that directly or indirectly orbit it forms the solar system. What celestial body was our solar system before evolving?

A. Quasar. B. Galaxy.
C. Supernova. D. Nebula.

45. Sita said that the gravity of planets causes them to migrate slowly over time. State weather she is right or not?

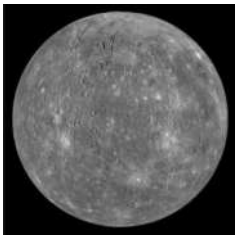


A. Yes, the planets have changed positions.
B. No, the planets stayed where they formed.
C. Yes, and they are still moving.
D. No, planets are too big to move.

46. The inner planets and their moons were bombarded by asteroids many a times. What did the asteroids leave behind?

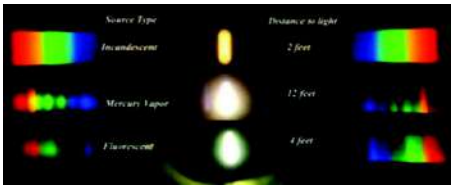
A. craters
B. calderas
C. mountains
D. valleys

47. Mercury is said to be similar to the moon as it is covered in craters and has a very thin atmosphere. Why is that Earth is covered with craters but Mercury is not?



A. Earth's atmosphere protects it.
B. Earth's moon blocks asteroids.
C. asteroids just missed Earth.
D. most asteroids land in Earth's oceans.

48. An optical spectrometer or spectroscope is an instrument which is used to study around the electromagnetic spectrum.



A. Mass of star
B. The elements in the star
C. The weight of the star
D. The sounds the star makes

49. Space observatoryis an instrument located in outer space. What is it used for?

A. Collect data
B. Take pictures
C. Transmit information
D. All of the above.

50. What space instrument do scientists use to travel beyond our solar system?

A. Space probes
B. Satellites
C. Observatories
D. Telescopes

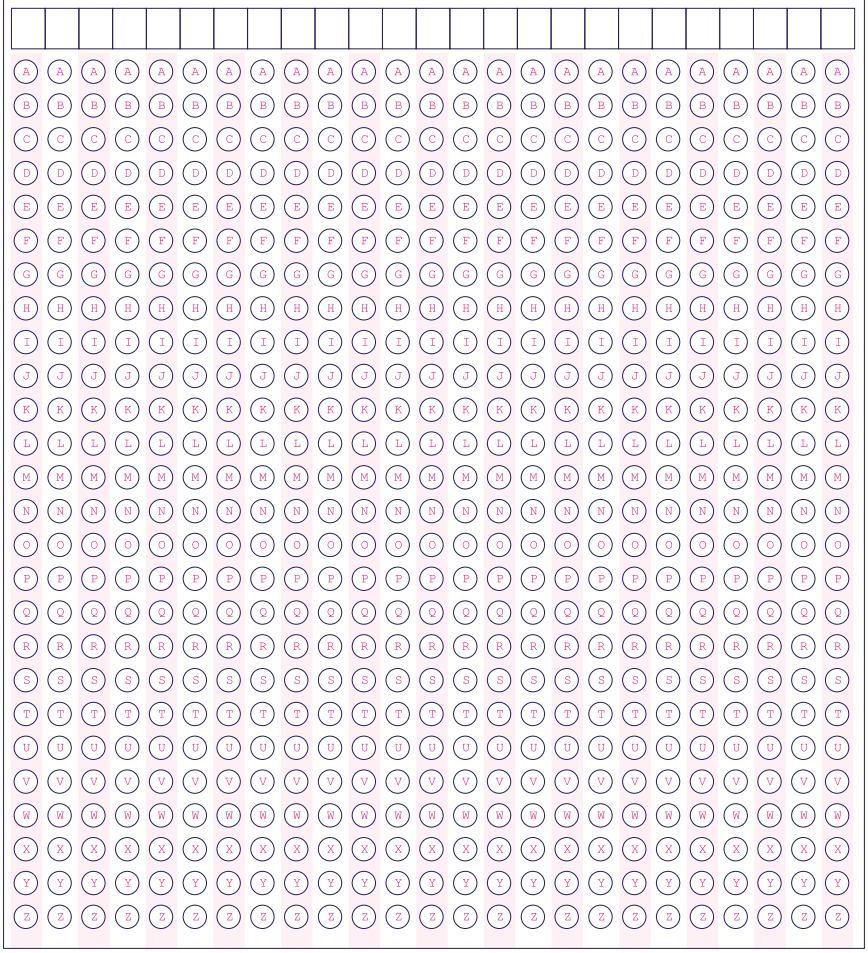
NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

Filling of all columns completely & accurately is important.

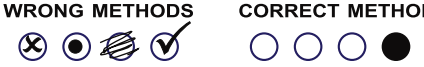
Candidate's Name



INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS **CORRECT METHOD**



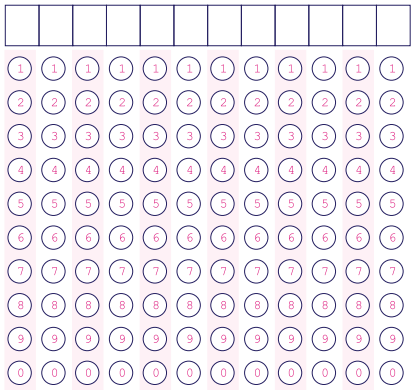
Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male ○
Female ○

RollNo.



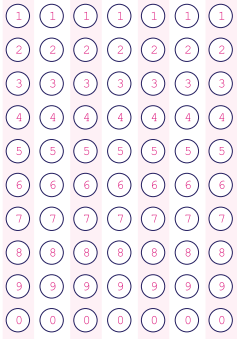
Father's Name

School Name

E-mail Id

City

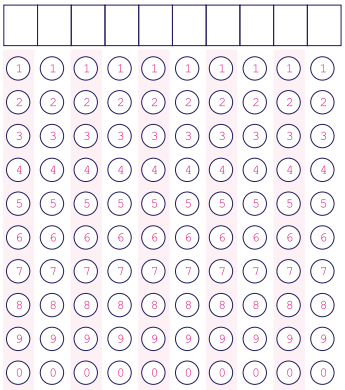
School Code



MARK YOUR ANSWERS HERE

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

Mobile No.



Candidate's Signature

Invigilator's Signature

NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

CLASS 6

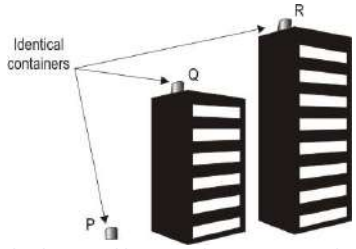
Duration : 60 Minutes | **Max Marks : 50**

GENRAL INSTRUCTIONS

1. Please collect the Answer Sheets (OMR) from the invigilator.
2. Please Write your Student ID, Name, Class, and School Name on the OMR Sheet.
3. This question paper contains 50 Questions, duration is 60 minutes.
4. Answer all the questions in OMR sheet only. And please do sign on it.
5. Use only Black or Blue Ball Point Pen to answer the question in OMR sheet.
6. Indicate the correct answer by darkening on the 4 responses provided.
7. After successful completion of the test please submit the OMR answer sheet to the invigilator.

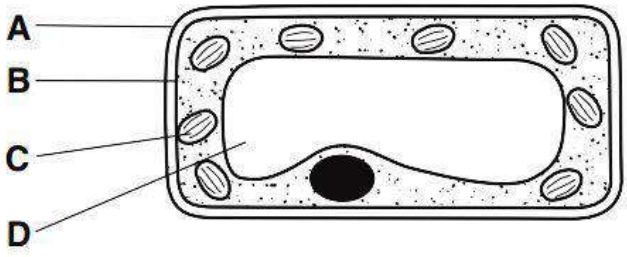
SECTION-I

1: Three identical containers P, Q and R are taken, and kept - one on the terrace of a tall building; another on the terrace of a shorter building; and the third in an open space. After a rain, which one will have the highest level of water, assuming no overflow and no obstructions near the containers?



a. P
b. Q
c. R
d. All three will have the same level

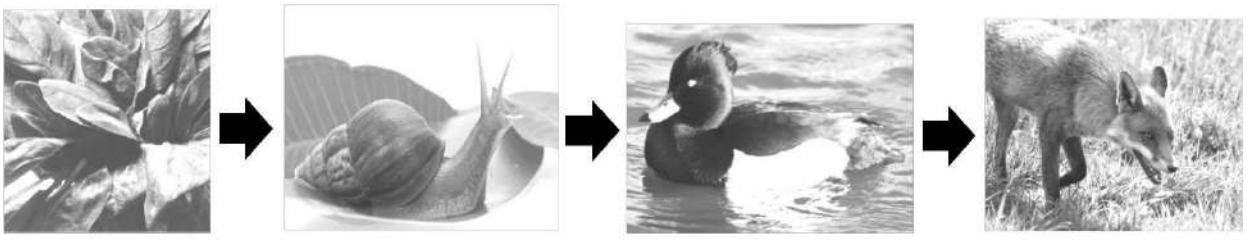
2: Kavya observed some cells using a microscope. One of the cells is shown in the diagram below?



Different parts of the cells are labelled A, B, C and D. Which of the following identify the parts of the cells correctly?

a. Trap light energy.
b. Control the entry of substances into the cell.
c. Can also be found in animal cells.
d. Control the activity of cell

3: According to the food chain below, predict what will happen if population R suddenly decreases in number?



P → Q → R → S

a. Population S would go to another area to hunt for food.
b. Population S would eat population P.
c. Population Q in the area will start dwindling.
d. Population P would grow abundantly in that area.

4. Arrange the sequence of the colour of the rainbow according to their respective Wavelength?

a. Red, Orange, Yellow, Green, Blue, Purple, Violet.
b. Red, Orange, Yellow, Green, Blue, Purple, Violet.
c. Red, Yellow, Orange, Green, Indigo, Blue, Violet.
d. Red, Yellow, Orange, Indigo, Blue, Purple, Violet.

5. Shanthi took four slices of bread and placed them under the following conditions.

Condition A	Condition B	Condition C	Condition D
			
Moist bread left in a bright room.	Moist bread left in a dark room.	Toasted bread left in a bright room.	Toasted bread left in a dark room.

After 1 week, she observed mould on some of the bread. Which of the following bread has mould on it?

a. Bread under condition A and B.
b. Bread under condition C and D.
c. Bread under condition A and C.
d. Bread under condition B and D.

6: **Usha wants to find out whether the temperature of water makes any difference to the rate at which salt dissolves. She has planned 6 set ups P, Q, R, S, T and U.**

Which TWO set ups above should she use?
a. P and R
b. Q and S
c. P and T
d. S and U

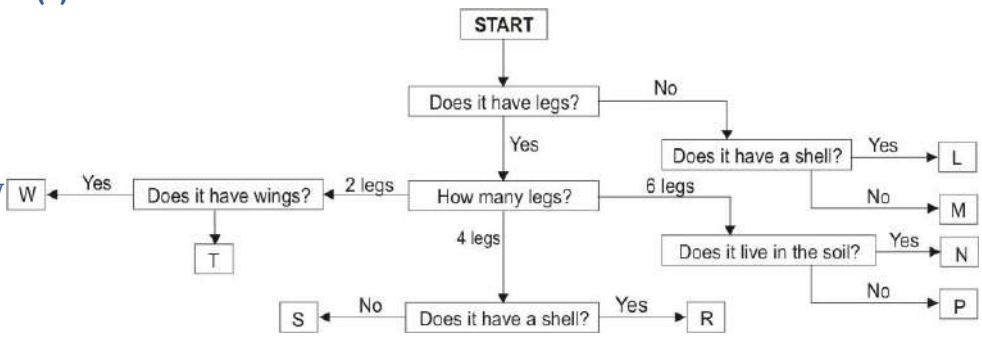
	Water	Temperature (°C)	Amount of salt
P	100 ml	25	3 g
Q	200 ml	25	3 g
R	100 ml	25	6 g
S	200 ml	50	9 g
T	100 ml	50	3 g
U	200 ml	50	6 g

7: The voltage generated by a regular pencil cell is about?

a. 1.5 Volts
b. 50 Volts
c. 100 Volts
d. 220 Volts

8: Which letter(s) correspond(s) to insects?

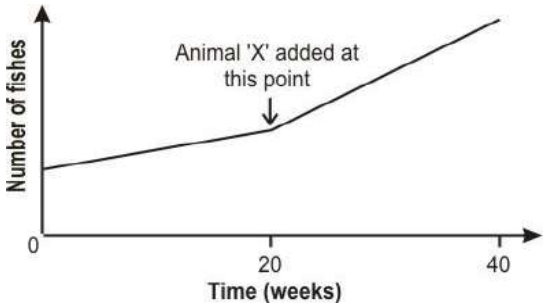
a. Only S
b. Only R and S
c. Only N and P
d. N, P, R, S, T and W



9: The graph below shows the numbers of a species of fish in a small pond.

What kind of animal has been added at point

a. one that eats the fish
b. one that eats what the fish eat
c. one that the fishes eat
d. the same species of fish

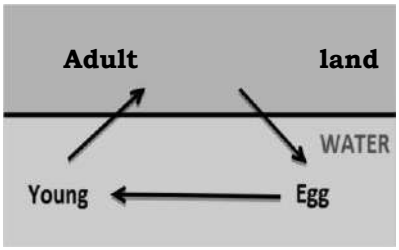


10. Sea breeze and land breeze occur every day. These natural occurrences will take effect whenever there are temperature differences between the land and water. Cooler air with higher pressure will flows towards warmer air with lower pressure.

During night time, what type of breeze will normally occur?

a. Sea breeze
b. Land breeze
c. Night breeze
d. Onshore breeze

11. Study the diagram below carefully.



With reference to the above diagram, which of the following statements about life cycles is? NOT true?

a. Mosquito and frog goes through a 3-staged life cycle shown above.
b. All living things go through the same 3-staged life cycle.
c. Life cycles follow a pattern that repeats itself continuously.
d. Some life cycles are long and some are short.

12. A scientist who studies Weather is _____?

a. Naturalist
b. Meteorologist
c. Entomologist
d. Naterotherapist

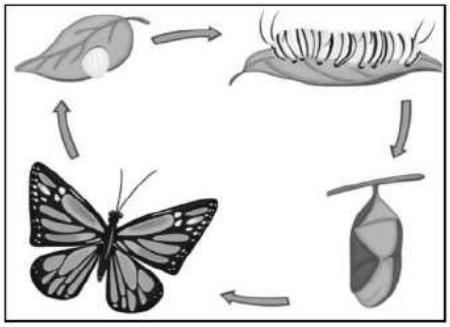
13: Penguins are endotherm. Which of the following are structural adaptations that enable them to live in the cold Antarctica.

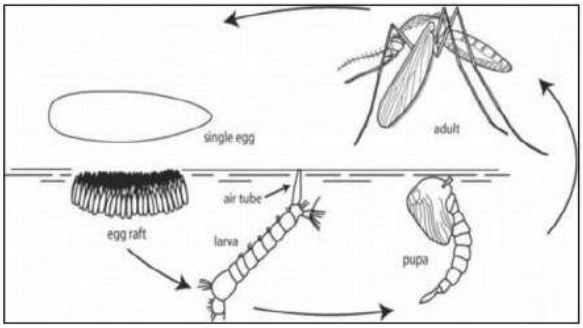
I. Presence of anti-freeze in blood.
II. Wings modified into flippers.
III. Thick layer of fat under the skin.
IV. Closely-packed overlapping feathers.

a. I, II and III
b. I, III and IV
c. I, II and IV
d. II, III and IV

14. The diagram below shows the lifecycle of two animals. Based on the diagrams below, in what way(s) is/are the life cycles of the animals similar?

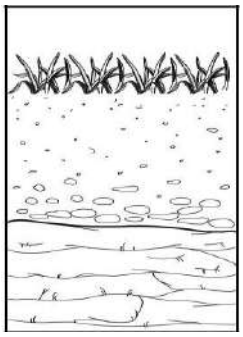
a. Both give birth to live young.
b. Both their young resemble the adults.
c. Both need to live in water after the adult stage.
d. Both have to go through the pupa stage before they become adults.





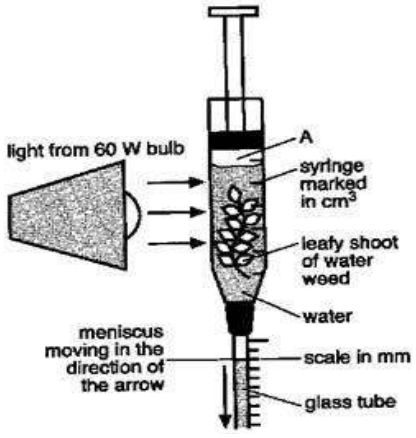
15. What can be found in both topsoil and subsoil?

a. Rocks, pebbles, and sand.
b. Water, air, and light.
c. Rocks, minerals, and plants.
d. Plants and animal

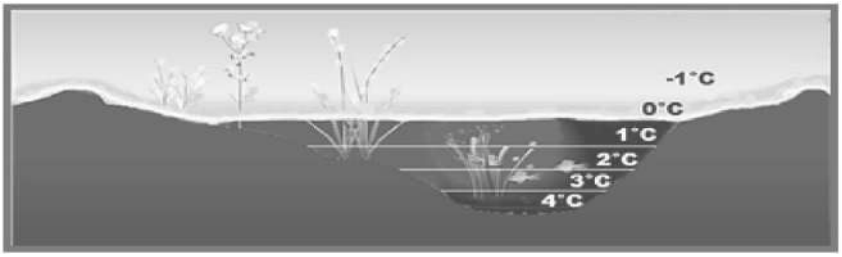


16. The figure below shows an apparatus set up to investigate the rate of photosynthesis of water weeds. Which of the following will *not* increase the rate of photosynthesis?

a. Increase in light intensity
b. Increase in temperature to 40 °C
c. Increase in oxygen concentration
d. Increase in concentration of mineral salts in the water



17. During winter, only the top layer of the lake or river freezes. The floating ice acts as insulation to prevent the freezing of water below it.



Which of the following properties of water allow aquatic life to survive in extremely cold conditions?

a. Ice is denser than water.
b. Water has greatest density at 4°C.
.c. Aquatic life is temporary frozen in winter.
d. Water expands at 0°C.

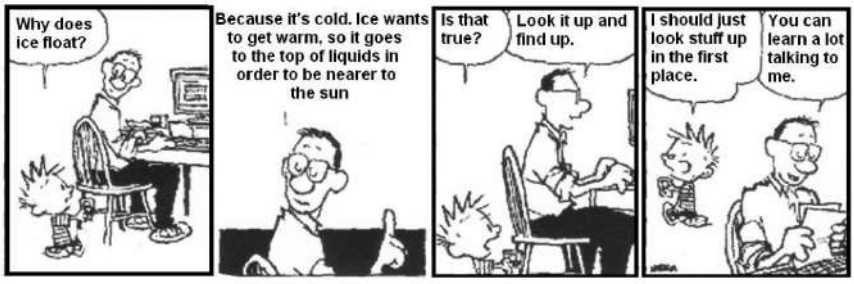
18: The footprints of astronauts will be around for 100 million years, as they cannot be eroded by water, air or volcanic activity on the moon. A possible explanation for this would be: -

a. The astronauts used shoes with deep markings.
b. There is no water, air or volcanic activity on the moon.
c. The moon does not move.
d. Astronauts want to be remembered for being on the moon

19. Which ONE of the following statements is not true for a liquid?

a. A liquid does not have shape, but takes the shape of the container in which it is.
b. There are no air spaces between the particles of a liquid.
c. A liquid can be measured.
d. When liquids are heated, they expand.

20. Look at the following cartoon. Which explanation best describes why ice floats?



a. Ice wants to get warm.
b. Ice is denser than water.
c. Liquids expand when cooled.
d. Ice freezes at the top of liquids

SECTION-II

21. Which was the first country to have its Astronauts Fly into space in both US and erstwhile USSR Spacecraft?

a. India b. Canada c. France d. Germany

22. What does a Space shuttle use for landing on Earth?

a. Rockets b. Parachutes c. Hydrogen Balloons d. Lithium Balloons

23. What is known as the science and technology of spaceflight?

a. Cosmonautics
b. Aeronautics
c. Astronautics
d. Aero Dynamics.

24. Which Indian space pioneer's autobiography is Wings of fire?

a. Satish Dhawan
b. APJ Abdul Kalam
c. Vikram Sarabhai
d. Rakesh Sharma

25. The moon is visible to us because the moon?

a. Reflects light from Sun.
b. Reflects light from Earth.
c. Produces light through fusion.
d. Produces light through combustion.

26. During a solar eclipse, these are the positions of the Earth, Sun, and Moon:

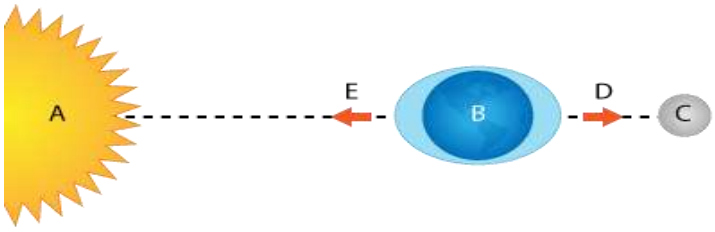
a. Earth Sun Moon
b. Sun Earth Moon
c. Sun Moon Earth
d. Moon Sun Earth

27. Which planet has seasons that last for about 40 years?

a. Jupiter
b. Neptune
c. Uranus
d. Earth

28. In this diagram, what phase of the moon (C) would be seen from the Earth (B)?

a. new moon
b. full moon
c. first quarter
d. third quarter



29. Which statement about the Earth's rotation and its revolution is correct?

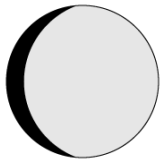
a. It takes the Earth longer to rotate on its axis than revolve around the sun.
b. It takes the Earth longer revolve around the sun than to rotate on its axis.
c. It takes the Earth longer to rotate around the sun than revolve on its axis.
d. It takes the Earth longer revolve around its axis than to rotate around the sun.

30. The picture shows the daylight of the Earth. Which of below statement describes why the Earth has day & night?

a. The moon rotates on an axis.
b. The Earth rotates on an axis.
c. The moon revolves around the Earth.
d. The Earth revolves around the sun.

31. Anu observes the moon in the phase shown About how long will it be before Anu can see the moon in the same phase again?

a. 1 week
b. 1 month
c. 1 year
d. 1 decade



32. How large is the Milky Way Galaxy?

a. It is the largest galaxy ever observed.
b. It takes up over half of the known universe.
c. It cannot be measured or compared.
d. It is very small when compared to the universe

33. Which of the following correctly ranks astronomical objects by size, starting with the smallest?

a. Earth, sun, solar system, galaxy, universe
b. Sun, solar system, Earth, universe, galaxy
c. Universe, galaxy, solar system, Earth, sun
d. Solar system, Earth, sun, universe, galaxy

34. Compared to our galaxy, how big is our solar system? The solar system is...

a. Extremely tiny.
b. About one-tenth of the galaxy.
c. About one-third of the galaxy.
d. Over half of the galaxy.

35. Our nearest star neighbour in space, Alpha Centauri, is four light years from Earth. Why will it be difficult to visit?

a. It is very bright and hot.
b. There may be no planets near it.
c. We are not sure exactly where it is.
d. It is very far away.

36. What are galaxies made of?

a. Moons and planets
b. Two stars orbiting each other
c. About one hundred stars
d. Many millions of stars

37. Why are distances in space often measured in light years?

a. The light year is a commonly used unit of measure.
b. Distances in space are so great that a large unit is needed.
c. Scientists always use metric units like light years.
d. Light years are easy to measure and understand.

38. Early astronomers thought that galaxies were single stars. Why was this mistake easy to make?

a. Galaxies are so far away that they look like a single star.
b. Galaxies are made of stars that you can only see one at a time.
c. Light from galaxies collects into a single beam.
d. Earth is small and galaxies are much larger.

39. What do the stars in a constellation have in common? The same...

a. Brightness
b. Size
c. Distance from Earth
d. General direction from Earth

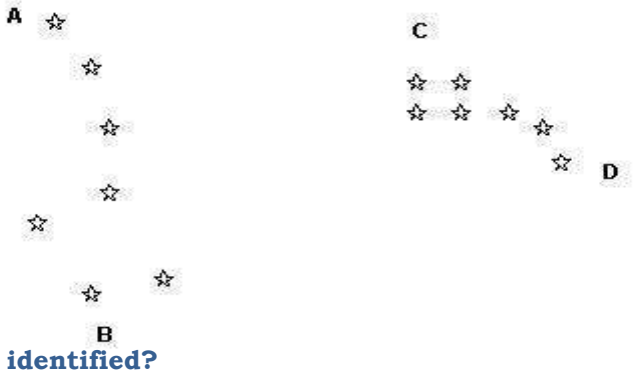
40. Which stars do we always see during the year? Stars...

a. On the horizon
b. Over the North Pole
c. In the larger constellations
d. Inside other galaxies

Use these below constellations to answer the next two questions.

41. Which constellation is located between star "A" and "B"?

a. Pegasus
b. Cassiopeia
c. Big Dipper
d. Orion



42. What star is "D"?

a. Antares
b. Betelgeuse
c. Polaris (North Star)
d. Sirius (Dog Star)

43. How constellations were originally named and identified?

a. As people or animals they may have resembled
b. Mathematically, with numbers and coordinates
c. In groups of very distant, bright or old stars
d. By their location from Earth's horizon

44. Looking at the distances between the sun and all of the planets in the universe, about how long would it take to travel from the sun past all planets? Assuming you would travel in the fastest spacecraft today.

a. 1 Year b. 5 Years c. 10 Years d. 20 Years

45. Where is Oort Cloud Located?

a. Between Mercury & Sun
b. Between Jupiter & Saturn
c. inside asteroid belt.
d. Beyond Pluto

46. Where is Astronomical Society of India Located?

a. Bangalore b. Chennai c. Udaipur d. Hyderabad

47. Which Heavenly body is the target of Indian Space Mission in 2008.

a. Moon b. Mars c. Mercury d. Venus

48. Where did first Planetarium in India Established?

a. Pune b. Guwahti c. Kolkata d. Jaipur

49. Which Nation's Flag has crescent Moon and a Star?

a. Ghana b. Pakistan c. Turkey d. Saudi Arabia

50. What is the term 'Saors" associated with?

a. Solar Eclipse. b. Sunspots c. Lunar Eclipse d. Solar Wind

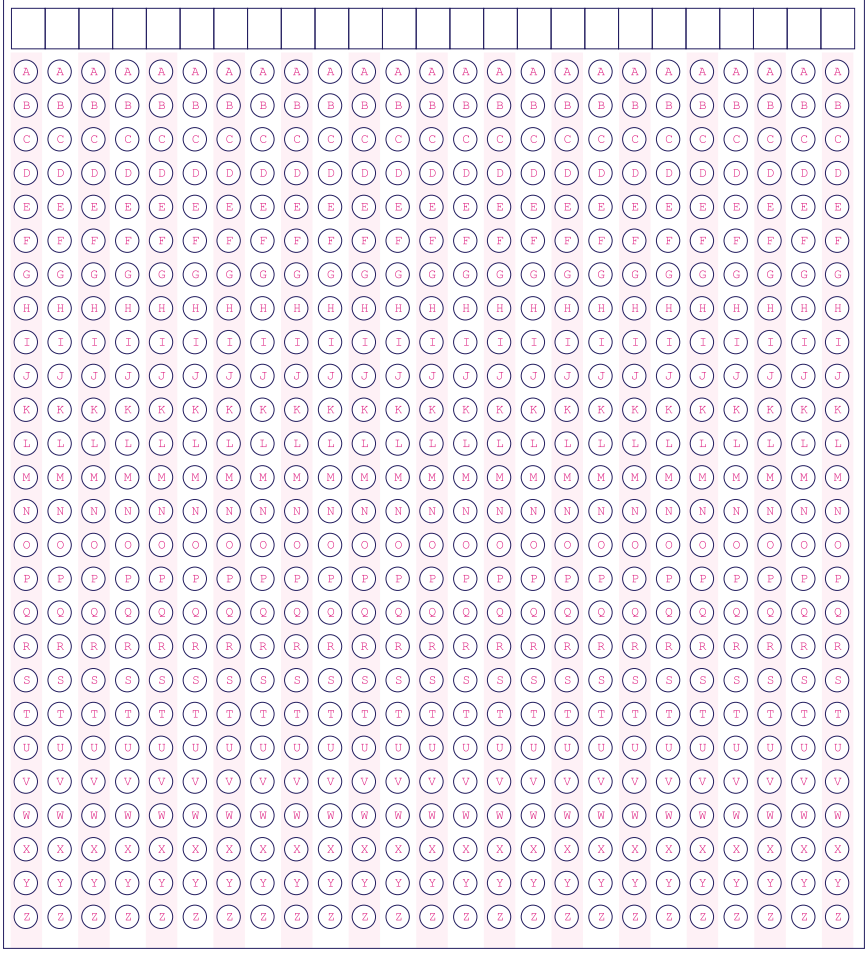
NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

Filling of all columns completely & accurately is important.

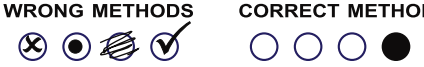
Candidate's Name



INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS **CORRECT METHOD**



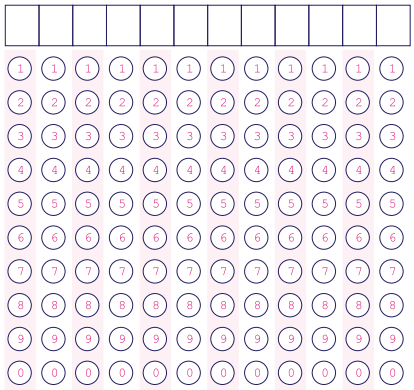
Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male ○
Female ○

RollNo.



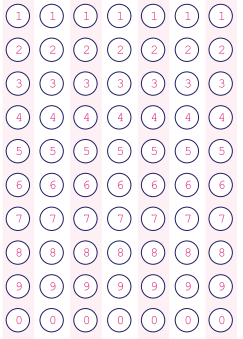
Father's Name

School Name

E-mail Id

City

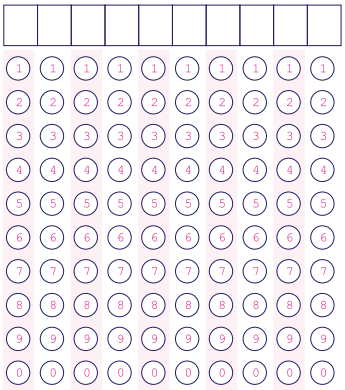
School Code



MARK YOUR ANSWERS HERE

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

Mobile No.



Candidate's Signature

Invigilator's Signature

NASO

6
CLASS

NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

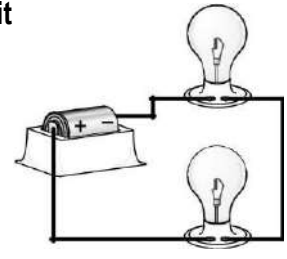
General Instructions

Duration: 60 Minutes | Max Marks: 50

1. Please collect the Answer Sheets (OMR) from the invigilator.
2. Please Write your Student ID, Name, Class, and School Name on the OMR Sheet.
3. This question paper contains 50 Questions, duration is 60 minutes.
4. Answer all the questions in OMR sheet only. And please do sign on it.
5. Use only Black or Blue Ball Point Pen to answer the question in OMR sheet.
6. Indicate the correct answer by darkening on the 4 responses provided.
7. After successful completion of the test please submit the OMR answer sheet to the invigilator.

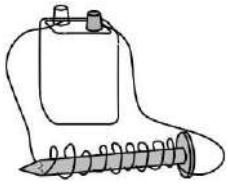
SECTION-I

1. The diagram below shows an electrical circuit. This circuit is a series circuit because?



a. It has two light bulbs.
b. The same current flows through both light bulbs.
c. It uses a single battery.
d. The current is divided between the light bulbs.

2. Which of the following is shown below?



a. Electromagnet
b. Electric motor
c. Electric generator
d. Transformer

3. Which of the following is a harmful waste material that leaves the blood and travels through the lungs before leaving the body?

a. CO_2 b. O_2 c. H_2O **d.** NaCl

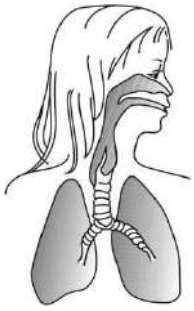
4. The chart below shows the results of experiment designed to study how exercise affects heart rate.

Activity Stage	Heart Rate of Person A (Beats per Min)	Heart Rate of Person B (Beats per Min)	Heart Rate of Person C (Beats per Min)
Before Exercise	75	62	70
After Exercise	120	110	130

Which of the following statements is the *best* conclusion for this Experiment?

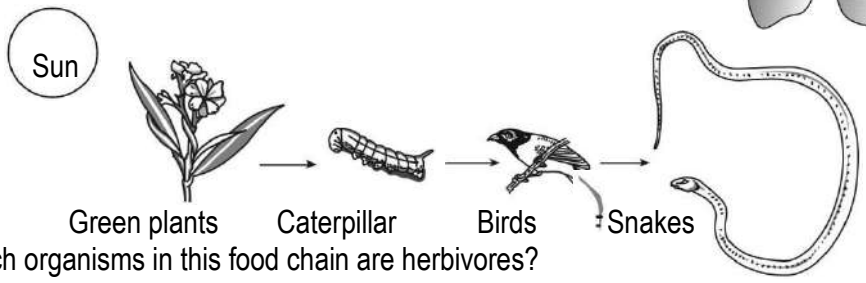
a. Exercise triples a person's heart rate.
b. Exercise decreases a person's heart rate.
c. Heart rate is not affected by exercise.
d. Heart rate is increased by exercise.

5. **The diagram below shows a human organ system. Which human organ system is shown?**



a. Nervous
b. Digestive
c. Circulatory
d. Respiratory

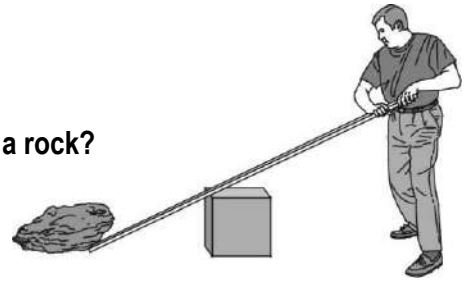
6. **The diagram below shows a food chain.**



Which organisms in this food chain are herbivores?

a. Green Plants
b. Caterpillars
c. Birds
d. Snakes

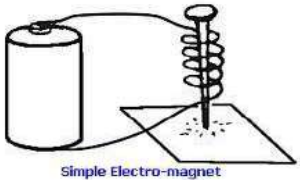
7. **The diagram below shows a person using a simple machine to move a rock?**



Which simple machine is the person using?

a. Pulley
b. Inclined Plane
c. Wheel & Axle
d. Lever.

8. The Following is a Diagram of a simple electromagnet.



How could this electromagnet be made stronger?

a. Remove all the coils and the nail
b. Use a Smaller Battery
c. Add more coils of wire to the nail.
d. Reverse the poles of the Magnet.

9. **Which of the following is most important in producing the season on Earth?**

a. Earth's gravitational attraction to the Sun
b. The Moon's revolution around Earth
c. The distance of Earth from the Sun
d. The tilt of Earth's axis as it revolves around the Sun

10. **Earth's atmosphere changed over time and eventually was able to support plant life. Which of these is the most likely cause of the change?**

a. Increased volcanic activity produced a lot of nitrogen and carbon dioxide gas
b. Gases from outer space entered Earth's atmosphere
c. Sunlight caused oxygen gas to form in the atmosphere
d. The ozone layer formed, protecting plants from ultraviolet radiation.

11. **Nitrogen is obtained from fractional distillation of liquefied air at about_____?**

a. 196°C b. 176°C c. 186°C d. 166°C

12. **The following diagram shows two bar magnets?**

What will ***most*** likely happen to the magnets?

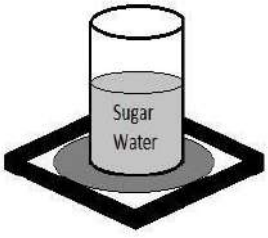
a. The north pole of one magnet will repel the south pole of the other magnet.
b. The north pole of one magnet will repel the north pole of the other magnet.
c. The south pole of one magnet will be attracted to the south pole of other magnet.
d. The north pole of one magnet will be attracted to the north pole of the other magnet.

13. **Which of these converts electrical energy into motion energy?**

a. A Stove
b. A Fan
c. A light Bulb
d. A Television

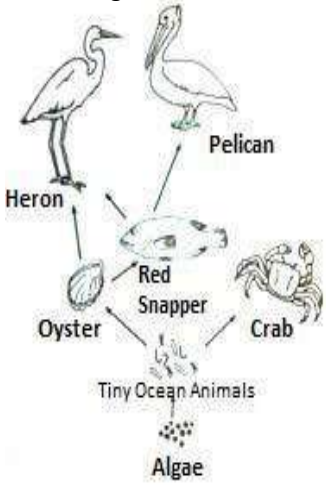
14. **Look at this picture of a sugar and water mixture.**

A student uses a hot plate to separate a mixture of water and sugar. Which physical property allowed this to occur?



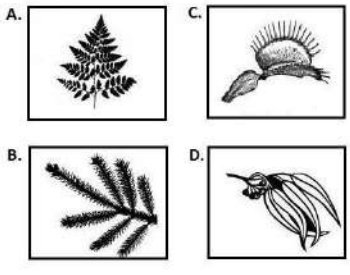
a. Water's crystal-like structure.
b. Water's ability to evaporate.
c. Sugar's ability to evaporate.
d. Sugar's crystal-like structure.

15. **This diagram shows a marine food web. Which best describes the role of the pelican in this food web?**



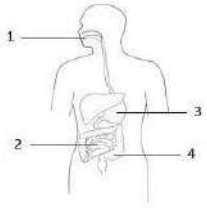
a. producer
b. decomposer
c. herbivore
d. carnivore

16. **The following are pictures of leaves found on different plants. Which of the plants would be found in an ecosystem with heavy snowfall?**



a. Plant A
b. Plant B
c. Plant C
d. Plant D

17. **The following is a diagram of the human digestive system. Which number shows where food mixes with acids to help break it down into parts that can be absorbed?**



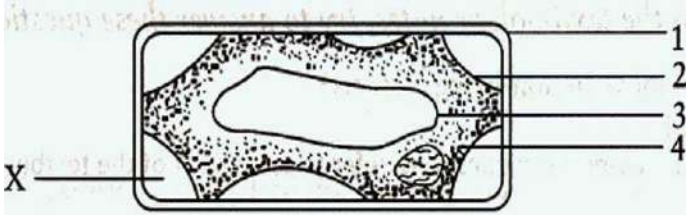
a. 1
2 d.

18. Which list gives the correct order for the formation of a delta?

a. Weathering, deposition, transport
b. Transport, weathering, deposition
c. Deposition, transport, weathering
d. Weathering, transport, deposition

19. **Refer the below diagram for following questions 19 & 20 which shows a typical plant cell after being placed in a concentrated sugar solution for 15 minutes?**
Which of the following occupies the region labelled X?

a. Air
b. Cell sap,
c. Sugar solution
d. Water



20. **Refer the above diagram for question no 20 which shows a typical plant cell after being placed in a concentrated sugar solution for 15 minutes?**

20. **Which of the numbered structures are partially permeable?**
a. 1 and 2 b. 1 and 4 c. 2 and 3 d. 2 and 4

21. **Among these species, which one appeared most recently on the earth?**
a. Fish b. Reptiles c. Man d. Birds

22. **Whales live in the ocean. Where do whales get the oxygen they need to breathe?**
a. Whales do not need to breathe oxygen.
b. There is oxygen gas dissolved in the water that the whales breathe in.
c. Each water molecule (H_2O) consists of an oxygen atom that the whales breathe in.
d. Whales come up to the surface of water and breathe in the air with oxygen in it.

23. **Which of the following are examples of respiration?**
1. *Humans use oxygen and release carbon dioxide.*
2. *Plants use carbon dioxide and release oxygen.*
3. *Burning dry leaves uses oxygen and releases carbon dioxide.*

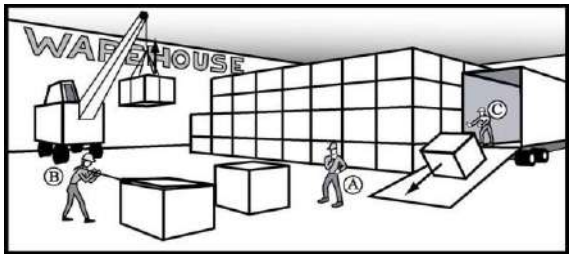
a. Only 1 c. Only 2
b. Only 1 and 2 d. All 1,2 & 3

24. **Which of these statements holds true for a liquid?**
a. Liquids have a shape of their own.
b. The molecules of a liquid are packed less tightly than the molecules of a solid.
c. When cooled, liquids become gases.
d. The volume of a liquid changes when it is poured into a different vessel.

25. **One of the purposes of HAIR in mammals is to keep them warm. How do elephants and rhinos - which are not completely covered by hair - keep themselves warm?**
a. They have a layer of fat instead of hair.
b. They move around a lot which keeps them warm.

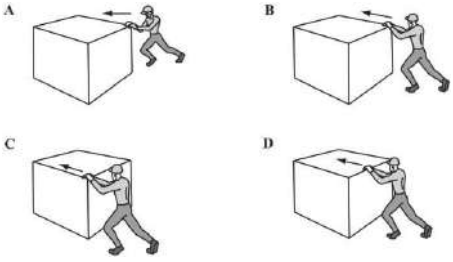
c. They have hair underneath the skin which keeps them warm.
d. They live in the tropics where the surrounding temperatures are not too low.

Use the following information to answer questions 26 through 28.



In a typical warehouse, like the one shown in the diagram above, workers use different methods to move large boxes from one place to another. Answer the following questions about handling large boxes in a warehouse.

26. Worker A wants to push a heavy box. Which of the following diagrams shows the *best* place for him to use force if he wants to move the box in a straight line? D



27. Worker B pushes a crowbar under the lid to open the box. How is the crowbar being used?

a. As a lever and as a pulley
b. As a lever and as an inclined plane
c. As a wedge and as a lever
d. As a wedge and as an inclined plane

28. What force is working against the box as the crane lifts it into the air?

a. Effort
b. Gravity
c. Friction
d. Distance

29. An electric bell is placed inside a bell jar which is connected to a vacuum pump. When the bell jar is completely evacuated_____?

a. No sound can be heard
b. The loudness of the sound will increase
c. The loudness of the sound will remain unchanged
d. The loudness of the sound will decrease

30. Which of the following in human body is popularly called the Adam's Apple'?

a. Adrenal b. Thyroid c. Liver d. Thymus

SECTION-II

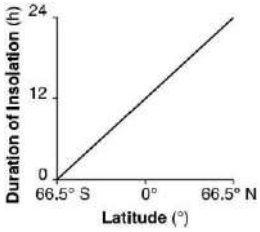
31. Which list of three planets and Earth's Moon is arranged in order of increasing equatorial diameter?

a. Earth's Moon, Pluto, Mars, Mercury
b. Mercury, Mars, Earth's Moon, Pluto
c. Pluto, Earth's Moon, Mercury, Mars
d. Mars, Mercury, Pluto, Earth's Moon

32. If Earth's axis were tilted to 35° instead of 23.5°, the average temperatures in New Delhi would most likely____?

a. Decrease in both summer and winter
b. Increase in summer and decrease in winter
c. Decrease in summer and increase in winter
d. Increase in both summer and winter

33. The graph below shows the general relationship between latitude and the duration of insolation on a particular day of the year.
Which date is represented by the graph?



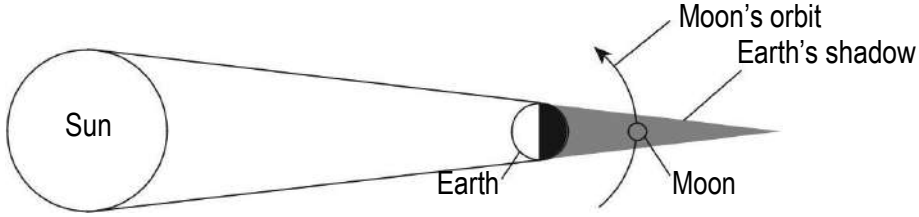
a. March 21
b. June 21
c. September 21
d. December 21

34. Which element is most abundant in Earth's crust?
a. Nitrogen
b. Hydrogen
c. Oxygen
d. Silicon

35. **When viewed from Earth, the light from very distant galaxies shows a red shift. This is evidence that these distant galaxies are _____?**

a. Revolving around the Sun
b. Revolving around the Milky Way
c. Moving away from Earth.
d. Moving toward Earth.

The diagram below shows the positions of the Sun, Earth, and the Moon as seen from space?



36. W**hich event is caused by the Moon passing through Earth's shadow?**
a. A meteor shower
b. Change of seasons
c. An eclipse
d. An earthquake

37. Which temperature zone of Earth's atmosphere contains the most water vapour?
a. Mesosphere
b. Stratosphere
c. Thermosphere
d. Troposphere

38. Scientists can plan to photograph a solar eclipse because most astronomical events are?
a. Cyclic and predictable
b. Random and predictable
c. Cyclic and unpredictable
d. Random and unpredictable

39. What is common to Venus and the moon?
a. Both are planets.
b. Both reflect the sun's light.
c. Both are luminous.
d. Both are satellites of the earth.

40. When travelling by air, your airplane flies through this zone of atmosphere:
a. Higher part of the Troposphere not beyond.
b. Mainly the lower part of the Stratosphere.
c. Lower part of the Mesosphere.
d. None of the above.

41. **Ozone molecules useful in blocking UV rays of the sun are dispersed at this altitude from the surface of earth:**

a. Only near the surface.
b. From 11 Kms to 30 Kms.
c. From surface to 11 Kms.
d. From 31 to 50 Kms.

42. Consider the following statements. Identify the right ones.

I. The earth has a layered structure.
II. From the outermost end of the atmosphere to the centre of the earth, the material that exists is not uniform.

a. I only
b. Both
c. II only
d. None

43. Our earth is geoid in shape. Which of the following evidences prove the earth's sphericity?

I. Circumnavigation of the earth
II. The circular horizon
III. Sunrise and sunset
IV. Planetary bodies are spherical

a. I only
b. I and IV only
c. II and III only
d. All

44. **If the average density of the universe were greater than the critical density, the universe would _____?**

a. Continue to contract forever.
b. Eventually stop expanding and then contract.
c. Continue to expand forever.
d. Eventually stop contracting and begin expansion.

45. **If an alien astronomer in a distant galaxy looks at the galaxies it can see, it will observe that _____?**

a. Half of the galaxies are moving away and half of them are moving toward it.
b. Other galaxies are stationary.
c. Other galaxies are moving away from it.
d. Other galaxies are moving toward it.

46. **"New Horizons" spacecraft was launched by NASA to study which of the following planet?**

a. Mars b. Jupiter c. Pluto d. Mercury

47. **Which planet can never be seen on the meridian at midnight?**

a. Jupiter b. Saturn c. Mercury d. Mars

48. **The Sun derives its energy from_____?**

a. Chemical reactions that convert hydrogen and oxygen into carbon, accompanied by the release of neutrinos.
b. The fusion of hydrogen into helium.
c. The conversion of energy into mass.
d. A steady gravitational contraction of its core.

49. **Most stars are composed of _____?**

a. About 1/4 hydrogen and 3/4 helium.
b. About 3/4 hydrogen and 1/4 helium.
c. Mostly iron in their core.
d. Equal parts hydrogen and helium.

50. **Which among the following two gases contribute to begin the formation of stars?**

a. Hydrogen & Nitrogen
b. Helium & Hydrogen
c. Nitrogen and Helium
d. Hydrogen and Oxygen

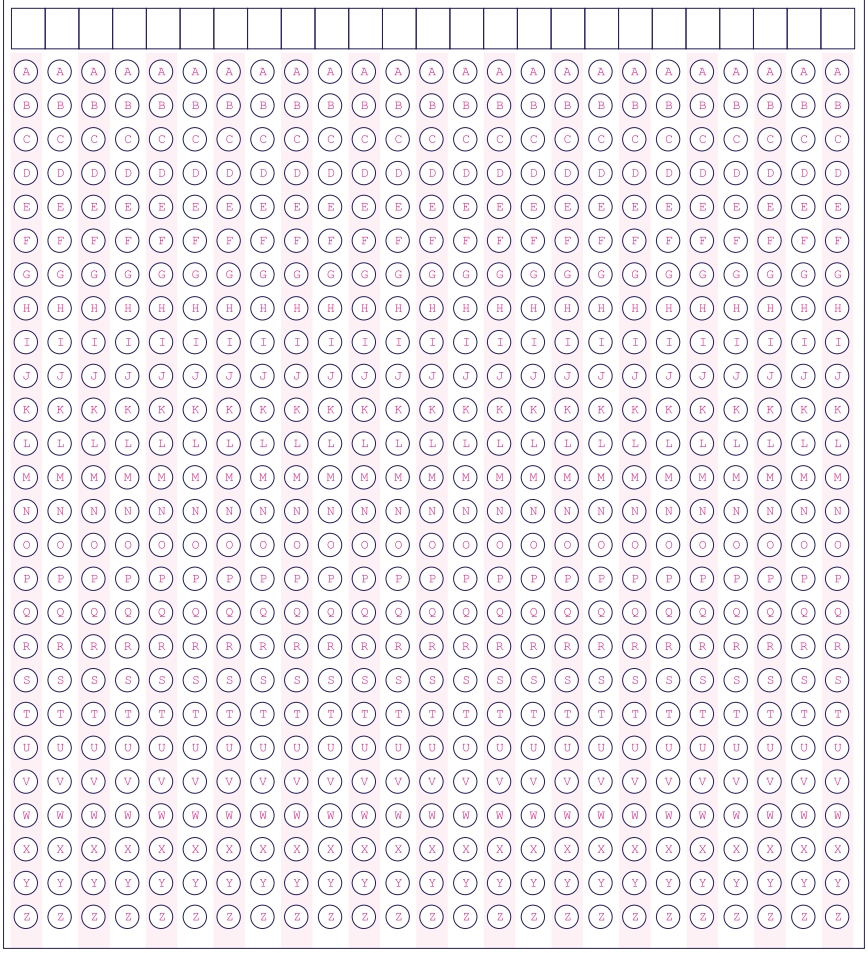
NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

Filling of all columns completely & accurately is important.

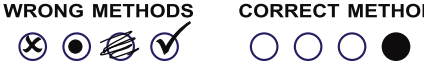
Candidate's Name



INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS **CORRECT METHOD**



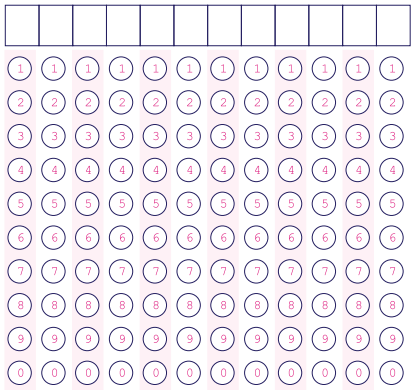
Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male ○
Female ○

RollNo.



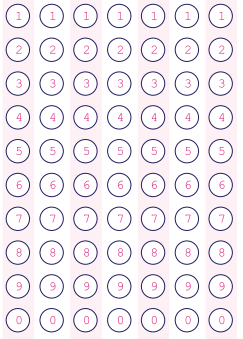
Father's Name

School Name

E-mail Id

City

School Code



MARK YOUR ANSWERS HERE

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

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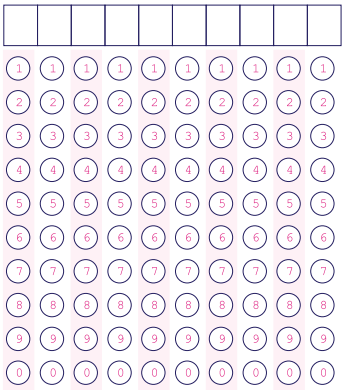


Candidate's Signature

Invigilator's Signature

NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

CLASS 6

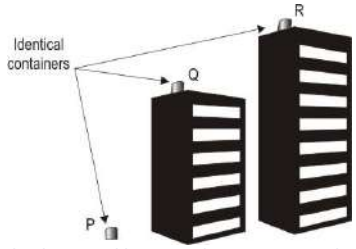
Duration : 60 Minutes | **Max Marks : 50**

GENRAL INSTRUCTIONS

1. Please collect the Answer Sheets (OMR) from the invigilator.
2. Please Write your Student ID, Name, Class, and School Name on the OMR Sheet.
3. This question paper contains 50 Questions, duration is 60 minutes.
4. Answer all the questions in OMR sheet only. And please do sign on it.
5. Use only Black or Blue Ball Point Pen to answer the question in OMR sheet.
6. Indicate the correct answer by darkening on the 4 responses provided.
7. After successful completion of the test please submit the OMR answer sheet to the invigilator.

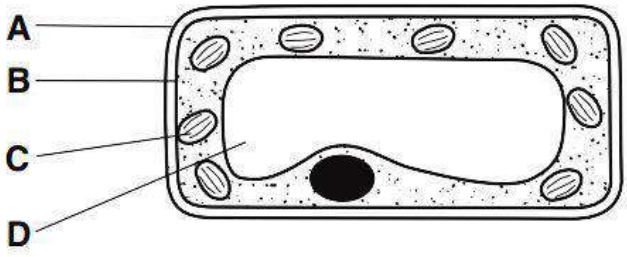
SECTION-I

1: Three identical containers P, Q and R are taken, and kept - one on the terrace of a tall building; another on the terrace of a shorter building; and the third in an open space. After a rain, which one will have the highest level of water, assuming no overflow and no obstructions near the containers?



a. P
b. Q
c. R
d. All three will have the same level

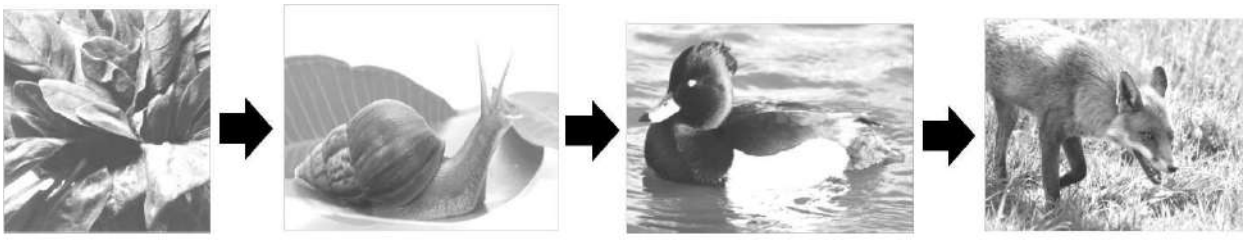
2: Kavya observed some cells using a microscope. One of the cells is shown in the diagram below?



Different parts of the cells are labelled A, B, C and D. Which of the following identify the parts of the cells correctly?

a. Trap light energy.
b. Control the entry of substances into the cell.
c. Can also be found in animal cells.
d. Control the activity of cell

3: According to the food chain below, predict what will happen if population R suddenly decreases in number?



P → Q → R → S

a. Population S would go to another area to hunt for food.
b. Population S would eat population P.
c. Population Q in the area will start dwindling.
d. Population P would grow abundantly in that area.

4. Arrange the sequence of the colour of the rainbow according to their respective Wavelength?

a. Red, Orange, Yellow, Green, Blue, Purple, Violet.
b. Red, Orange, Yellow, Green, Blue, Purple, Violet.
c. Red, Yellow, Orange, Green, Indigo, Blue, Violet.
d. Red, Yellow, Orange, Indigo, Blue, Purple, Violet.

5. Shanthi took four slices of bread and placed them under the following conditions.

Condition A	Condition B	Condition C	Condition D
			
Moist bread left in a bright room.	Moist bread left in a dark room.	Toasted bread left in a bright room.	Toasted bread left in a dark room.

After 1 week, she observed mould on some of the bread. Which of the following bread has mould on it?

a. Bread under condition A and B.
b. Bread under condition C and D.
c. Bread under condition A and C.
d. Bread under condition B and D.

6: **Usha wants to find out whether the temperature of water makes any difference to the rate at which salt dissolves. She has planned 6 set ups P, Q, R, S, T and U.**

Which TWO set ups above should she use?
a. P and R
b. Q and S
c. P and T
d. S and U

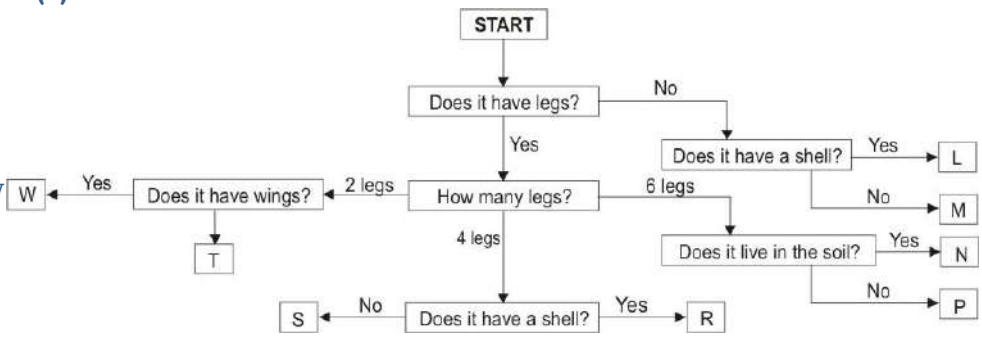
	Water	Temperature (°C)	Amount of salt
P	100 ml	25	3 g
Q	200 ml	25	3 g
R	100 ml	25	6 g
S	200 ml	50	9 g
T	100 ml	50	3 g
U	200 ml	50	6 g

7: The voltage generated by a regular pencil cell is about?

a. 1.5 Volts
b. 50 Volts
c. 100 Volts
d. 220 Volts

8: Which letter(s) correspond(s) to insects?

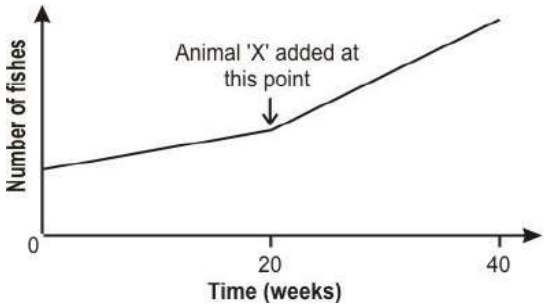
a. Only S
b. Only R and S
c. Only N and P
d. N, P, R, S, T and W



9: The graph below shows the numbers of a species of fish in a small pond.

What kind of animal has been added at point

a. one that eats the fish
b. one that eats what the fish eat
c. one that the fishes eat
d. the same species of fish

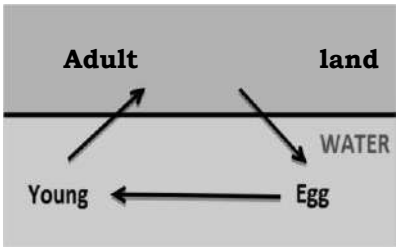


10. Sea breeze and land breeze occur every day. These natural occurrences will take effect whenever there are temperature differences between the land and water. Cooler air with higher pressure will flows towards warmer air with lower pressure.

During night time, what type of breeze will normally occur?

a. Sea breeze
b. Land breeze
c. Night breeze
d. Onshore breeze

11. Study the diagram below carefully.



With reference to the above diagram, which of the following statements about life cycles is? NOT true?

a. Mosquito and frog goes through a 3-staged life cycle shown above.
b. All living things go through the same 3-staged life cycle.
c. Life cycles follow a pattern that repeats itself continuously.
d. Some life cycles are long and some are short.

12. A scientist who studies Weather is _____?

a. Naturalist
b. Meteorologist
c. Entomologist
d. Naterotherapist

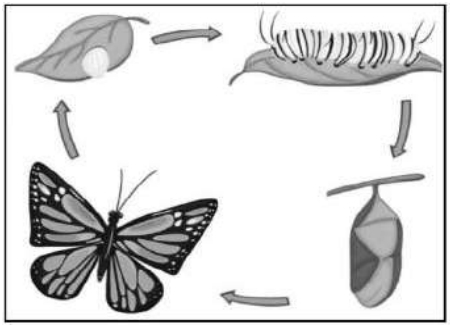
13: Penguins are endotherm. Which of the following are structural adaptations that enable them to live in the cold Antarctica.

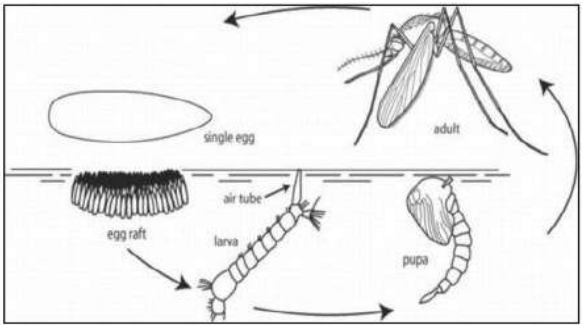
I. Presence of anti-freeze in blood.
II. Wings modified into flippers.
III. Thick layer of fat under the skin.
IV. Closely-packed overlapping feathers.

a. I, II and III
b. I, III and IV
c. I, II and IV
d. II, III and IV

14. The diagram below shows the lifecycle of two animals. Based on the diagrams below, in what way(s) is/are the life cycles of the animals similar?

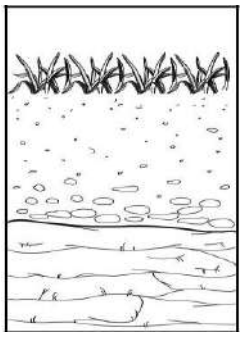
a. Both give birth to live young.
b. Both their young resemble the adults.
c. Both need to live in water after the adult stage.
d. Both have to go through the pupa stage before they become adults.





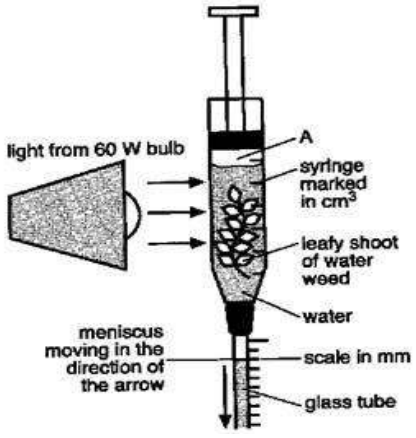
15. What can be found in both topsoil and subsoil?

a. Rocks, pebbles, and sand.
b. Water, air, and light.
c. Rocks, minerals, and plants.
d. Plants and animal

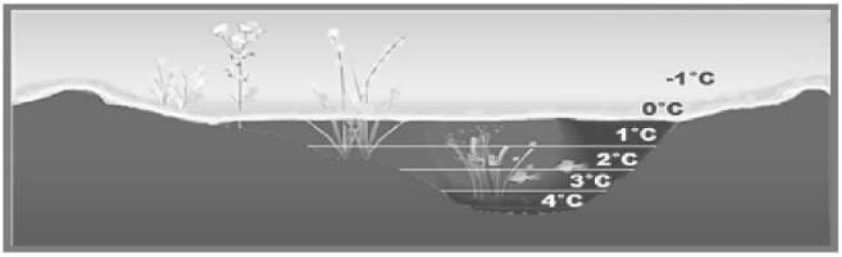


16. The figure below shows an apparatus set up to investigate the rate of photosynthesis of water weeds. Which of the following will *not* increase the rate of photosynthesis?

a. Increase in light intensity
b. Increase in temperature to 40 °C
c. Increase in oxygen concentration
d. Increase in concentration of mineral salts in the water



17. During winter, only the top layer of the lake or river freezes. The floating ice acts as insulation to prevent the freezing of water below it.



Which of the following properties of water allow aquatic life to survive in extremely cold conditions?

a. Ice is denser than water.
b. Water has greatest density at 4°C.
.c. Aquatic life is temporary frozen in winter.
d. Water expands at 0°C.

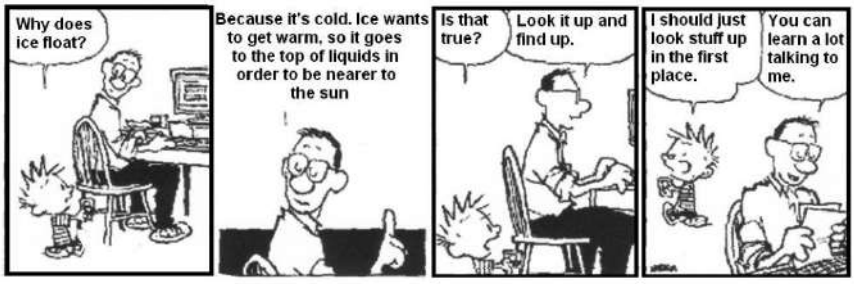
18: The footprints of astronauts will be around for 100 million years, as they cannot be eroded by water, air or volcanic activity on the moon. A possible explanation for this would be: -

a. The astronauts used shoes with deep markings.
b. There is no water, air or volcanic activity on the moon.
c. The moon does not move.
d. Astronauts want to be remembered for being on the moon

19. Which ONE of the following statements is not true for a liquid?

a. A liquid does not have shape, but takes the shape of the container in which it is.
b. There are no air spaces between the particles of a liquid.
c. A liquid can be measured.
d. When liquids are heated, they expand.

20. Look at the following cartoon. Which explanation best describes why ice floats?



a. Ice wants to get warm.
b. Ice is denser than water.
c. Liquids expand when cooled.
d. Ice freezes at the top of liquids

SECTION-II

21. Which was the first country to have its Astronauts Fly into space in both US and erstwhile USSR Spacecraft?

a. India b. Canada c. France d. Germany

22. What does a Space shuttle use for landing on Earth?

a. Rockets b. Parachutes c. Hydrogen Balloons d. Lithium Balloons

23. What is known as the science and technology of spaceflight?

a. Cosmonautics
b. Aeronautics
c. Astronautics
d. Aero Dynamics.

24. Which Indian space pioneer's autobiography is Wings of fire?

a. Satish Dhawan
b. APJ Abdul Kalam
c. Vikram Sarabhai
d. Rakesh Sharma

25. The moon is visible to us because the moon?

a. Reflects light from Sun.
b. Reflects light from Earth.
c. Produces light through fusion.
d. Produces light through combustion.

26. During a solar eclipse, these are the positions of the Earth, Sun, and Moon:

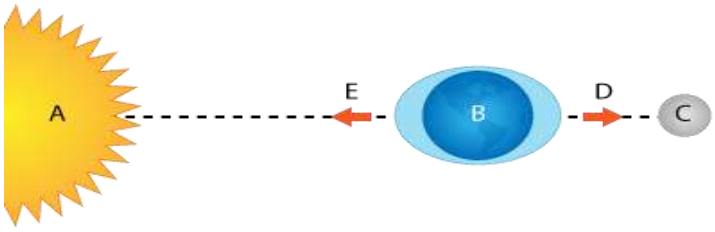
a. Earth Sun Moon
b. Sun Earth Moon
c. Sun Moon Earth
d. Moon Sun Earth

27. Which planet has seasons that last for about 40 years?

a. Jupiter
b. Neptune
c. Uranus
d. Earth

28. In this diagram, what phase of the moon (C) would be seen from the Earth (B)?

a. new moon
b. full moon
c. first quarter
d. third quarter



29. Which statement about the Earth's rotation and its revolution is correct?

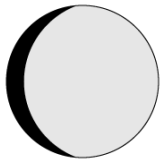
a. It takes the Earth longer to rotate on its axis than revolve around the sun.
b. It takes the Earth longer revolve around the sun than to rotate on its axis.
c. It takes the Earth longer to rotate around the sun than revolve on its axis.
d. It takes the Earth longer revolve around its axis than to rotate around the sun.

30. The picture shows the daylight of the Earth. Which of below statement describes why the Earth has day & night?

a. The moon rotates on an axis.
b. The Earth rotates on an axis.
c. The moon revolves around the Earth.
d. The Earth revolves around the sun.

31. Anu observes the moon in the phase shown About how long will it be before Anu can see the moon in the same phase again?

a. 1 week
b. 1 month
c. 1 year
d. 1 decade



32. How large is the Milky Way Galaxy?

a. It is the largest galaxy ever observed.
b. It takes up over half of the known universe.
c. It cannot be measured or compared.
d. It is very small when compared to the universe

33. Which of the following correctly ranks astronomical objects by size, starting with the smallest?

a. Earth, sun, solar system, galaxy, universe
b. Sun, solar system, Earth, universe, galaxy
c. Universe, galaxy, solar system, Earth, sun
d. Solar system, Earth, sun, universe, galaxy

34. Compared to our galaxy, how big is our solar system? The solar system is...

a. Extremely tiny.
b. About one-tenth of the galaxy.
c. About one-third of the galaxy.
d. Over half of the galaxy.

35. Our nearest star neighbour in space, Alpha Centauri, is four light years from Earth. Why will it be difficult to visit?

a. It is very bright and hot.
b. There may be no planets near it.
c. We are not sure exactly where it is.
d. It is very far away.

36. What are galaxies made of?

a. Moons and planets
b. Two stars orbiting each other
c. About one hundred stars
d. Many millions of stars

37. Why are distances in space often measured in light years?

a. The light year is a commonly used unit of measure.
b. Distances in space are so great that a large unit is needed.
c. Scientists always use metric units like light years.
d. Light years are easy to measure and understand.

38. Early astronomers thought that galaxies were single stars. Why was this mistake easy to make?

a. Galaxies are so far away that they look like a single star.
b. Galaxies are made of stars that you can only see one at a time.
c. Light from galaxies collects into a single beam.
d. Earth is small and galaxies are much larger.

39. What do the stars in a constellation have in common? The same...

a. Brightness
b. Size
c. Distance from Earth
d. General direction from Earth

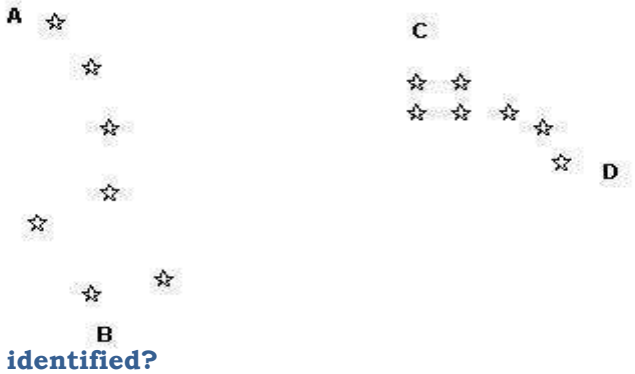
40. Which stars do we always see during the year? Stars...

a. On the horizon
b. Over the North Pole
c. In the larger constellations
d. Inside other galaxies

Use these below constellations to answer the next two questions.

41. Which constellation is located between star "A" and "B"?

a. Pegasus
b. Cassiopeia
c. Big Dipper
d. Orion



42. What star is "D"?

a. Antares
b. Betelgeuse
c. Polaris (North Star)
d. Sirius (Dog Star)

43. How constellations were originally named and identified?

a. As people or animals they may have resembled
b. Mathematically, with numbers and coordinates
c. In groups of very distant, bright or old stars
d. By their location from Earth's horizon

44. Looking at the distances between the sun and all of the planets in the universe, about how long would it take to travel from the sun past all planets? Assuming you would travel in the fastest spacecraft today.

a. 1 Year b. 5 Years c. 10 Years d. 20 Years

45. Where is Oort Cloud Located?

a. Between Mercury & Sun
b. Between Jupiter & Saturn
c. inside asteroid belt.
d. Beyond Pluto

46. Where is Astronomical Society of India Located?

a. Bangalore b. Chennai c. Udaipur d. Hyderabad

47. Which Heavenly body is the target of Indian Space Mission in 2008.

a. Moon b. Mars c. Mercury d. Venus

48. Where did first Planetarium in India Established?

a. Pune b. Guwahti c. Kolkata d. Jaipur

49. Which Nation's Flag has crescent Moon and a Star?

a. Ghana b. Pakistan c. Turkey d. Saudi Arabia

50. What is the term 'Saors" associated with?

a. Solar Eclipse. b. Sunspots c. Lunar Eclipse d. Solar Wind

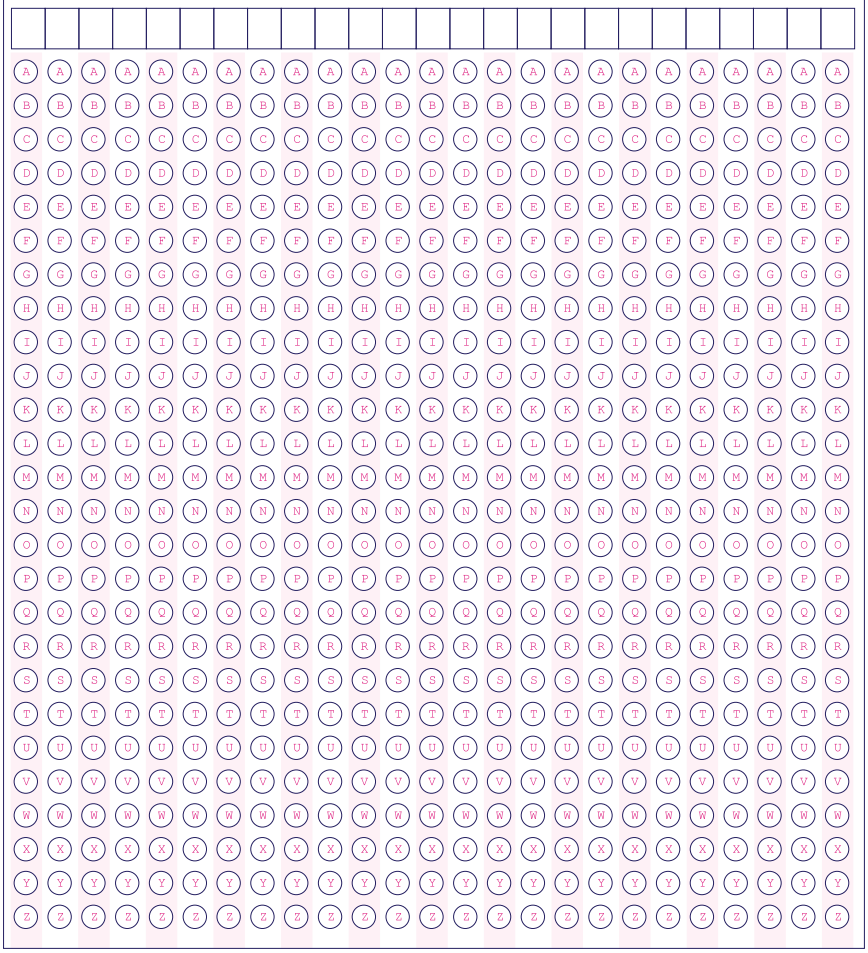
NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

Filling of all columns completely & accurately is important.

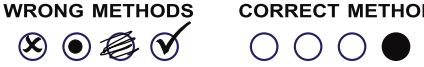
Candidate's Name



INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS **CORRECT METHOD**



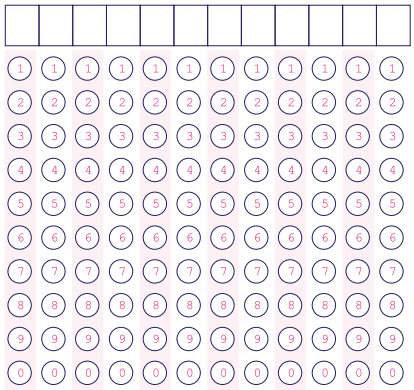
Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male ○
Female ○

RollNo.



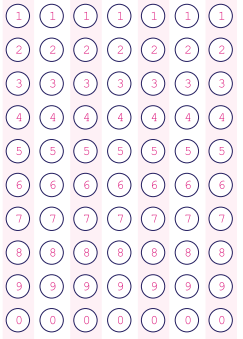
Father's Name

School Name

E-mail Id

City

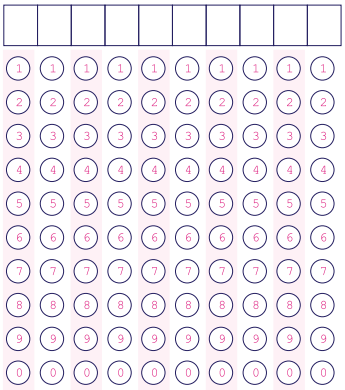
School Code



MARK YOUR ANSWERS HERE

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

Mobile No.



Candidate's Signature

Invigilator's Signature

NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

Navars Edutech

- Total Questions : 50
- Time 1 Hour

6 CLASS

INSTRUCTIONS

- Please Write your Student ID, Name, Class, and School Name on the OMR Sheet.
- This question paper contains 50 Questions, duration is 60 minutes.
- Answer all the questions in OMR sheet only and please do sign on it.
- Use only Black or Blue Ball Point Pen to answer the questions in the OMR sheet.
- Indicate the correct answer by darkening one of the 4 responses provided.
- After successful completion of the test, please submit the OMR answer sheet to the invigilator.
- ★ Marked Questions are HOT's or Critical Type Questions.

1. Identify the correct option which constitutes the correct arrangement of the mirrors so that Ravi can see the TV from other side.

a. b. c. d.

2. Which graph correctly represents the length of Sita's shadow as she moves past a lamp post from left to the right?

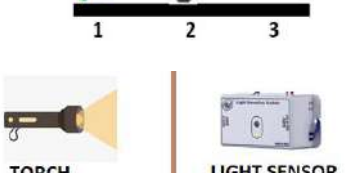
a. 

b. 

c. 

d. 

3. Roshan conducted an experiment in order to check the relation between the amounts of sheets in between a torch and a light sensor and its effects on the amount of light passing through it. He increased the amount of sheets and recorded the readings as shown in the table below:

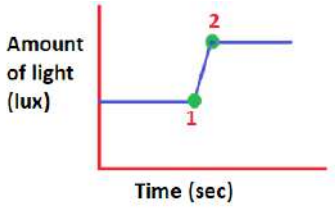


Number of paper sheets	Amount of light (lux)
0	90
1	50
2	30
3	20
4	0
5	0

What changes should Roshan make if he needs to pass light through 4 sheets of paper?

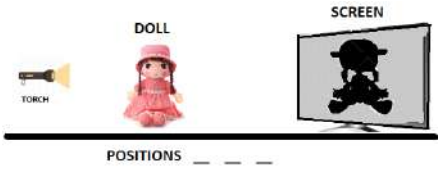
a. Move the torch further from the papers.
b. Move the papers nearer to the light sensor.
c. Move the light sensor further from the papers.
d. Move the torch closer to the papers.

4. The following graph shows the amount of light as detected by a sensor placed in a normal room. What could be the possible reasons for the sudden change in the amount of light from point 1 to point 2 ?



a. Someone closed the curtains in the room.
b. Someone placed a wooden block near the sensor.
c. Someone covered a light bulb in the room with a cloth.
d. Someone switched on a light in the room.

★5. Roshan carried out an investigation to find out if the position of an object affects the height of its shadow. He placed a doll in between a torch light and a screen as shown in the diagram below.



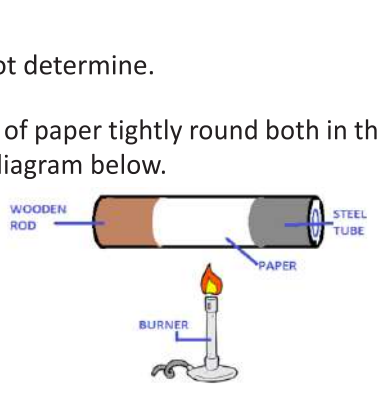
Then he measured the height of the shadow cast on the screen. Next, he repeated the experiment in different positions by adjusting the distance between the screen and the teddy bear only. The torchlight remained stationary throughout the experiment. Roshan recorded his results in the table below:

POSITION	HEIGHT OF THE SHADOW ON SCREEN (cm)
1	20
2	25
3	14

Based on the results in the table, at which position (1, 2 or 3) of the doll, it is nearest to the torch light?

a. Position 1 b. Position 2 c. Position 3 d. cannot determine.

6. Manisha attached a wooden rod to a steel tube. She then wrapped a piece of paper tightly round both in the centre. The paper is gently heated over a Bunsen burner as shown in the diagram below.



After some time, which side of the paper is scorched?

a. The side of the paper round the steel tube.
b. The side of the paper round the wooden rod.
c. Both sides of the paper get equally scorched.
d. Both sides of the paper remain unaffected.

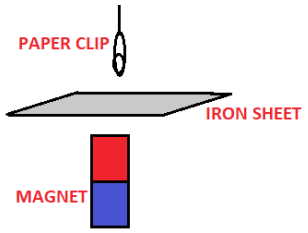
7. The results of tests conducted on the properties of different types of plastics are shown in the table below.

PROPERTY	PLASTIC 1	PLASTIC 2	PLASTIC 3	PLASTIC 4
FLEXIBLE	NO	YES	YES	YES
LIGHT WEIGHT	YES	YES	YES	NO
HEATS UP EASILY	YES	YES	NO	YES

Which type of plastic is most suitable as material for an inflatable swimming vest for a child?

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

★8. In the experiment below, an iron sheet is placed between a magnet and a suspended paper clip. (a) What will happen to the paper clip when the magnet is dragged along the iron sheet?



(b) If the iron sheet is now replaced by a plastic sheet, what would you observe when the magnet is dragged along the plastic sheet?

a. (a) Nothing will happen.
(b) The paper clip will be attracted to the magnet.

b. (a) The magnet will attract the paper clip.
(b) The magnet will attract the paper clip.

c. (a) Nothing will happen
(b) Nothing will happen

d. (a) The magnet will attract the paper clip.
(b) Nothing will happen.

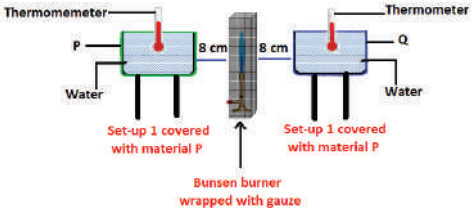
9. Monika carried out an experiment as shown in the set-ups below.

The beaker in Set-up 1 was covered with material P while the beaker in Set-up 2 was covered with material Q.

The temperature of the water in the two beakers at the start of the experiment was 26 degrees Celsius.

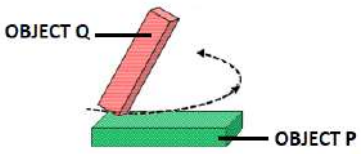
She then recorded the temperature of the water in the two set-ups every 10 minutes as shown in the table below. Based on the results of the experiment, which material is more suitable for making containers for keeping food warm?

TIME(mins)	TEMPERATURE IN SET-UP 1 (degrees Celsius)	TEMPERATURE IN SET-UP 2 (degrees Celsius)
10	55	40
20	72	53
30	98	70



a. Material P b. Material Q
c. Both Material P and Material Q. d. None of the above.

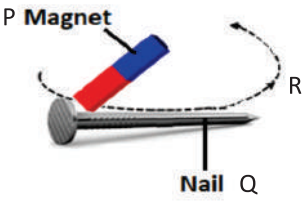
★10. Object Q was used to stroke object P from one end to the other 30 times as shown in the diagram below. Object Q was then used again to stroke object R for 30 times using the same method. Objects P and R were then placed near a small needle immediately after repeatedly stroking. It was found those only object P could attract the needle but not object R. Which of the following correctly shows what objects P, Q and R could be made of?



OPTIONS	P	Q	R
1	MAGNET	ALLUMINIUM ROD	IRON ROD
2	IRON ROD	MAGNET	COPPER ROD
3	STEEL ROD	COPPER	MAGNET
4	MAGNET	MAGNET	STAINLESS STEEL ROD

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

★11. Three identical iron nails P,Q and R were made into temporary magnets by stroking them with different number of strokes using the same magnet. P, Q and R were then hammered 30 times each and tested to find out if they could still attract paper clips. The procedure was repeated for each magnet by increasing the total number of times they were hammered. (**Yes** for paper clips attracted and **No** for paper clips not attracted) The table below shows the results collected.

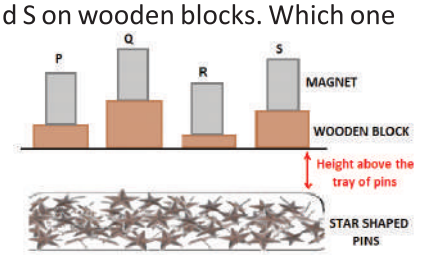


Based on the above results, which one of the following statements is correct?

NUMBER OF TIMES HAMMERED	P	Q	R
30	YES	YES	NO
40	YES	NO	NO
80	NO	NO	NO

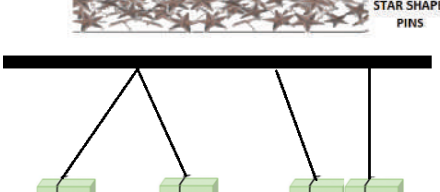
a. Magnet R is the weakest magnet.
b. Magnet P is as strong as magnet Q.
c. Magnet Q has been stroked the most number of times.
d. Magnet P is stronger than magnet R but weaker than magnet Q.

12. He placed the four magnets of similar size but different strength P, Q, R and S on wooden blocks. Which one of the following statements is true about the strength of the magnets?



a. Magnet Q is the weakest magnet.
b. Magnet R is the strongest magnet.
c. Magnet P is weaker than magnet S.
d. Magnet P is not as strong as magnet Q.

★13. The diagram below shows four metal bars of the same size suspended from the ceiling. Four pupils made the following statements.

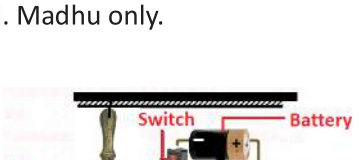


Ram: Bar 1 is a magnet.

Sonu: Bar 2 is not a magnet.
Madhu: Bar 3 is made of a magnetic material.
Meghan: Bar 4 is made of aluminium
Whose statements are wrong?

a. Sonu and Meghan both. b. Ram only. c. Madhu, Ram and Sonu. d. Madhu only.

★14. Study the set up shown below.



An iron bell was hung near an iron bar in the circuit above. When the switch in the circuit was closed and opened continuously, the bell would ring . For the bell to ring continuously, which of the following will work?

Statement 1: The switch of the circuit in the setup is closed and opened continuously

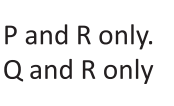
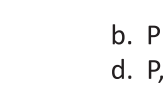
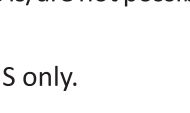
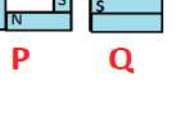
Statement 2: The iron bar is replaced with a magnet bar and then the switch is opened and closed continuously

a. Statement 1 only
b. Statement 2 only
c. Both **Statement 1** and **Statement 2.**
d. None of them.

15. Study the diagram of the four set ups, P, Q, R and S below.
If the ring magnets are used in set-up R and bar magnets are used in set-ups P, Q and S, which of the arrangements is/are not possible?

a. P and R only.
b. P only.
c. Q and R only
d. P, R and S only.

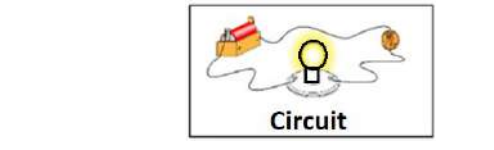
16. Sumegha formed four circuits as shown below. Which one out of these is different from the other three?

a. 
b. 
c. 
d. 

17. In a circuit, Sumegha connected the wires of the circuit using a coin? Why did she do that?

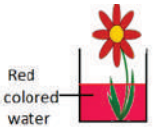
a. The coin is used to light up the bulb.
b. The coin is used to supply extra power.
c. To test and see if the coin conducts electricity.
d. The coin will prevent sparks.

18. What alternative of a resistor can Sumegha use in the circuit?



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

★19. Rama plucked 4 stalks of flower from the same plant. She placed them in the beaker and poured some red coloured water at different times at different temperatures. She recorded the time taken for the flowers to turn red in the given table.

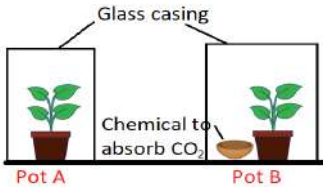


Temperature of Water (°C)	30	35	40	45
Time taken for flower to turn red (days)	4	3	2	1

Identify the incorrect statement based on the above experiment.

a. As the time taken for the flower to turn red decreases, the temperature of the water increases.
b. The higher the temperature, the faster the red colour water travels through the water carrying tubes.
c. As the time taken for the flower to turn red increases, the temperature of the water increases.
d. The higher the temperature, the slower the red colour water travels through the water carrying tubes.

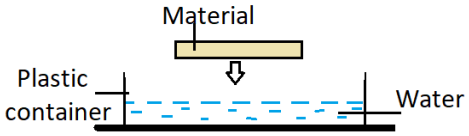
20. In an experiment, two similar plants were kept in two different pots. Pot B has some added chemicals which absorbs CO_2 from the air. In which plant photosynthesis will occur more appropriately?



a. Plant in pot A
b. Plant in pot B
c. Both plants
d. Neither of the plants.

★21. Sheetal took a plastic container filled with water.

She placed three materials; (1, 2 and 3) of same size, shape and thickness; gently on the water surface. She observed the following: Identify the option with correct matching



MATERIAL	OBSERVATIONS MADE
E	Sinks immediately to the bottom of the container.
F	Floats at first but sinks after 10 minutes.
G	Remains afloat even after 10 minutes.

a. E- Clay, F- Hollow plastic ball, G- paper.
b. E- Porcelain, F- paper, G- Hollow plastic ball.
c. E- Porcelain, F- clay, G- Hollow plastic ball.
d. E- Porcelain, F- cloth, G- Iron ball.

★22. Raghu has bought a lot of explosives for Diwali celebrations. But there is still time for celebrations to come. Hence he decided to build a shelter for the explosives. He has three materials as options- material 1, 2 and 3. Each material fulfills certain properties (shown by the check-marks). Help him identify the most suitable material for the shelter.

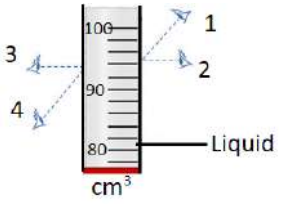
PROPERTIES	1	2	3
Can tolerate high temperature	No	Yes	Yes
Does not break easily	No	No	Yes

a. Material 1.
b. Material 2.
c. Material 3.
d. All of the three materials.

23. Raj is vacating in the Maldives. It's quite wet there during this time. He decides to buy boots for himself so as to avoid water and roam around in water-filled roads. Which boots should he buy?

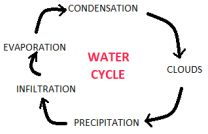
a. Rubber boots. b. Leather boots. c. Metal boots. d. Fabric boots.

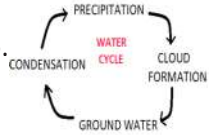
24. Identify the correct position of the eyes in order to read the correct volume of water in the measuring cylinder.

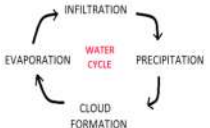


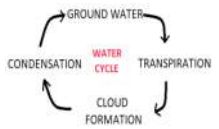
a. 1
b. 2
c. 3
d. 4

25. Identify the diagram with correct representation of the water cycle.

a.


b.


c.


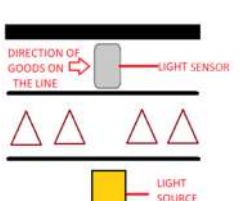
d.


★26. The table below shows the melting and boiling point of four different materials (P, Q, R and S) identify the temperature at which the four materials are in the same state.

SUBSTANCE	MELTING POINT (°C)	BOILING POINT (°C)
P	- 10	90
Q	25	100
R	- 45	25
S	15	95

a. - 5 degree Celsius.
b. 5 degree Celsius.
c. 50 degree Celsius.
d. 105 degree Celsius.

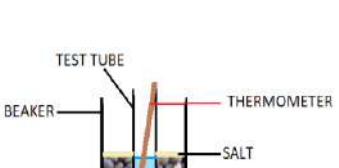
27. In a factory light is used to count the number of goods. When the light by the light source is completely blocked by a good, the sensor marks a count.



It was observed that certain goods were not counted by the light sensor. What could be the possible reason?

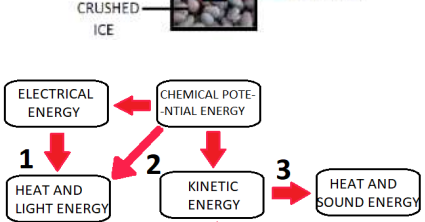
a. The goods were too close to the sensor.
b. The light source was too bright.
c. Those good were sheer/ transparent.
d. The goods were placed at uneven distance from each other.

★28. In a setup, Rita took a beaker half filled with ice and put a test tube containing water in it. She then added three teaspoon of salt to the beaker. What will happen to the tap water in the test tube?



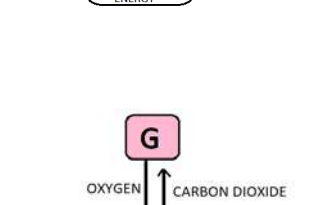
a. It will evaporate.
b. It will start to boil.
c. It will freeze.
d. No change.

29. Identify the correct examples of devices that work according to the flowchart, represented by 1, 2, 3 and 4.



a. 1- Electric heater, 2- burning coal, 3- explosive going off, 4- dropping a ball from second floor.
b. 1- Burning coal, 2-Electric heater, 3- dropping a ball from second floor, 4-explosive going off.
c. 1- explosive going off, 2- burning coal, 3-Electric heater, 4- dropping a ball from second floor.
d. None of the above.

★30. The diagram below denotes the working of different systems in the human body. Identify the relationship between E and F.

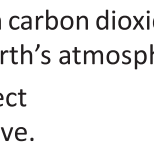


a. System E breaks food into simpler substances in order for system F to absorb and transport it to the rest of the body.
b. System F breaks food into simpler substances in order for system E to absorb and transport it to the rest of the body.
c. System E absorbs oxygen and converts it into carbon dioxide for system F to transport it to the rest of the body.
d. All of the above.

31. Scientists have advised various alternatives in order to diminish carbon dioxide concentration. What adverse effects can the increased amounts of carbon dioxide in the Earth's atmosphere lead to?

a. Global warming
b. Greenhouse effect
c. Carbon monoxide poisoning
d. None of the above.

32. What does the ozone layer in the stratosphere absorb?



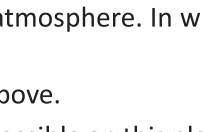
a. Ozone
b. Carbon dioxide
c. Ultraviolet radiation
d. None of the above.

33. Earth's atmosphere traps energy from the sun and allows water to exist in this atmosphere. In what form does this water exist?

a. Water
b. Liquid
c. Gas
d. None of the above.

34. Earth's atmosphere comprises of unique combination of gases, and hence life is possible on this planet. Out of the given options, identify the gases present in abundance on Earth.

Carbon dioxide **Nitrogen**
Oxygen **Water vapour**



a. Water vapour and Nitrogen.
b. Carbon dioxide and Oxygen.
c. Oxygen and Nitrogen.
d. Water vapour and Nitrogen.

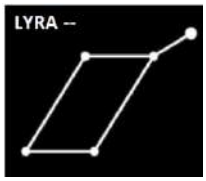
35. During re-entry from space, tell the very first layer of Earth's atmosphere passed by an astronaut?

a. Troposphere b. Ionosphere c. Mesosphere d. Exosphere

36. Black holes are the objects having intense gravitational pull. The major part of a black hole's nucleus seems black. What is the reason for that?

a. Because of its intense gravitational pull, not even light can escape from it.
b. Because of its huge size, eyes cannot see the colours of the black hole.
c. Because it's far from Earth.
d. As its nucleus is made of dark rain clouds.

37. The diagram below represents the constellation Lyra. In the month of July, Lyra is visible to Sohan at midnight in Delhi. But he cannot see it at midnight in December. Which statement best explains why?

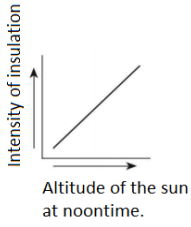


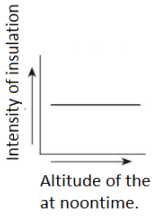
a. Earth spins on its axis. b. Earth orbits the Sun.
c. Lyra spins on its axis. d. Lyra orbits Earth.

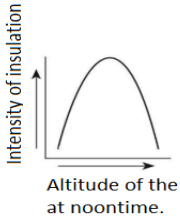
★38. Lyra is a small and dim constellation, but it is home to the fifth brightest star in the sky. Name that star.

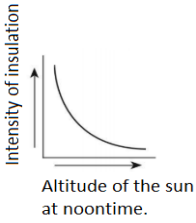
a. Aldebaran b. Antares, aka Alpha Scorpii. c. Vega. d. Capella Ab.

★39. One of the following graphs represents the general relationship between the intensity of insulation received at a particular location and the altitude of the Sun at noontime. Identify the correct graphical representation.

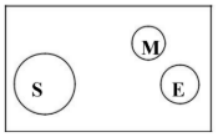
a. 

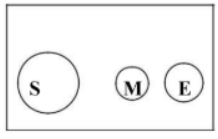
b. 

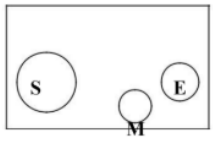
c. 

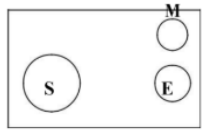
d. 

40. At certain time, the position of the Sun, the Moon, and Earth results in the highest high tides, and the lowest low tides on Earth. Identify correct position for such transition.

a. 

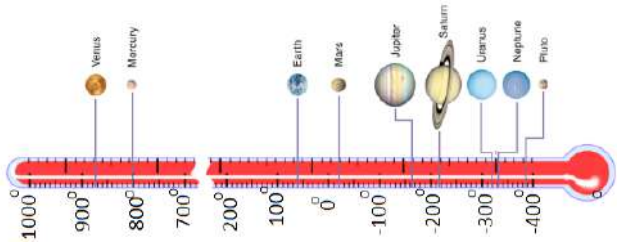
b. 

c. 

d. 

41. The given diagram shows the average temperatures of various destinations in our solar system published in January 30, 2018 by NASA/Lunar and Planetary Institute.

In general, with increasing distance from the sun, the surface temperatures decreases. Which planet is an exception?

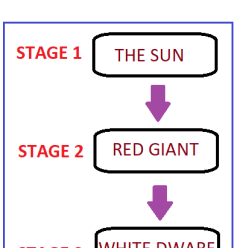


a. Mars b. Mercury
c. Venus d. Earth.

★42. What could be the possible reason for the answer to above question?

a. The palnet's surface consists of boiling water surface.
b. The planet is closest to the sun.
c. The planet's Black crust absorbs majority part of Sun's heat.
d. The planet's dense atmosphere acts as a greenhouse and heats the surface.

★43. Stars undergo evolutionary changes over time span of millions of years. The stages of some predicted changes in the Sun are displayed below:



Choose the correct option according to this flowchart.

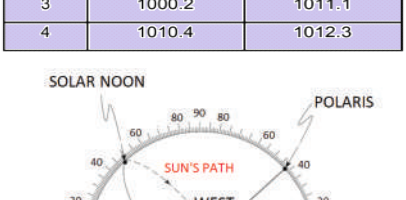
a. The sun will become Cooler and brighter in stage 2, then hotter and dimmer in stage 3.
b. The sun will become Cooler and dimmer in stage 2, then hotter and brighter in stage 3
c. The sun will become Hotter and dimmer in stage 2, then cooler and brighter in stage 3
d. The sun will become hotter and brighter in stage 2, then cooler and dimmer in stage 3.

★44. The table below shows air-pressure readings were taken on four different days in the same region of two cities (City A and City B) at noon on planet Earth. Out of the given options, pick the day on which the wind speed was probably the greatest at noon in the region between cities A and B.

Day	City A Air Pressure (mb)	City B Air Pressure (mb)
1	1004.0	1004.0
2	1000.1	1002.9
3	1000.2	1011.1
4	1010.4	1012.3

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

★45. Base your answers to questions 45 to 47 on the diagram below, which represents a model of the sky (celestial sphere)for an observer in Orissa along with the path of the sun during a part of one day and the Polaris altitude. Read the diagram carefully and state the altitude of the sun at solar noon.



a. 31.5° b. 48° c. 12° d. 98°

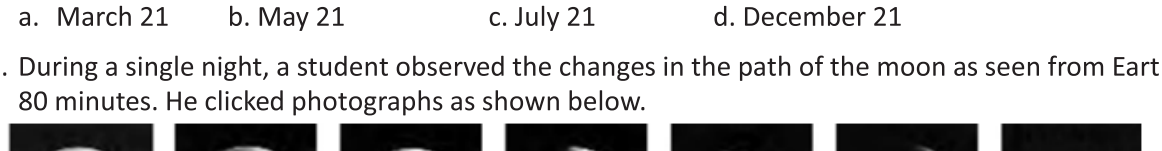
★46. According to the diagram, what could be the position of the observer?

a. Chilika lake b. Slide Mountain c. Baripada. d. Bhubaneswar.

★47. Identify the date on which this observation about the path of the Sun have been made?

a. March 21 b. May 21 c. July 21 d. December 21

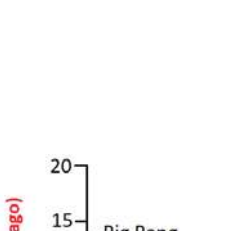
★48. During a single night, a student observed the changes in the path of the moon as seen from Earth for over 80 minutes. He clicked photographs as shown below.



This changing appearance of the Moon is a result of which specific motion?

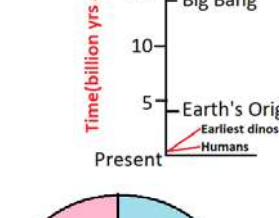
a. The movement of the Moon into the shadow of Earth.
b. The movement of the Moon into the shadow of the Sun.
c. The movement of the Sun into the shadow of Earth.
d. The movement of the Sun into the shadow of the Moon.

★49. Observe the given time line and state what this line most accurately indicates. sequence of events in Earth's history occurred?



a. The sequence of events in Earth's history.
b. The origin of the universe.
c. The sequence of events in formation of the Sun.
d. The events in human evolution.

50. Following Chat shows the proportion of Gases on Mars. Observe carefully and jot down correct answers.



a. Nitrogen & Hydrogen are of almost same percentage.
b. Nitrogen & Carbon dioxide are almost same.
c. Hydrogen & Carbon dioxide are equal.
d. A & B are true.

NASO
NATIONAL ASTRONOMY & SCIENCE OLYMPIAD

ANSWER SHEET

National Astronomy & Science Olympiad

Filling of all columns completely & accurately is important.

Candidate's Name

INSTRUCTIONS FOR FILLING THE SHEET

1. This sheet should not be folded or crushed.
2. Use only blue/black ball point pen to fill the circles.
3. Use of pencil is strictly prohibited.
4. Circles should be darkened completely and properly
5. Cutting and erasing on this sheet is not allowed.
6. Do not use any stray marks on the sheet.
7. Do not use marker or white fluid to hide the mark.

WRONG METHODS **CORRECT METHOD**

Grade

2nd 3rd 4th 5th 6th 7th 8th 9th 10th

Gender

Male
Female

RollNo.

Father's Name

School Name

E-mail Id

City

School Code

MARK YOUR ANSWERS HERE

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

Mobile No.

Candidate's Signature

Invigilator's Signature

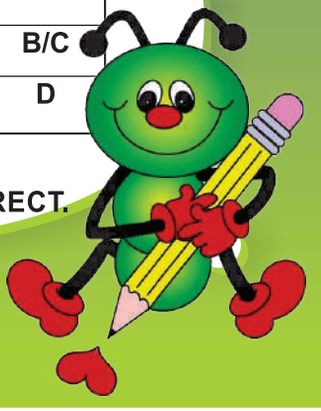
2015 QUESTION PAPER - ANSWER KEY

QUESTION NO.	1	2	3	4	5	6	7	8	9	10
ANSWER	C	C	D	C	D	A	C	C	C	D
QUESTION NO.	11	12	13	14	15	16	17	18	19	20
ANSWER	A	C	C	C	C	C	C	A	D	B
QUESTION NO.	21	22	23	24	25	26	27	28	29	30
ANSWER	C	C	B	B	B	C	D	C	C	C
QUESTION NO.	31	32	33	34	35	36	37	38	39	40
ANSWER	C	B	D	D	B	C	D	B	A	A
QUESTION NO.	41	42	43	44	45	46	47	48	49	50
ANSWER	A	A	C	D	C	A	A	B	D	A

2016 QUESTION PAPER - ANSWER KEY

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

9. SINCE NO FISHES INCREASES AFTER ADDITION OF ANIMAL X AT THE POINT. THE ANIMAL MUCT BE THE ONE THAT FISHES EAT.HENCE OPTION C IS CORRECT.

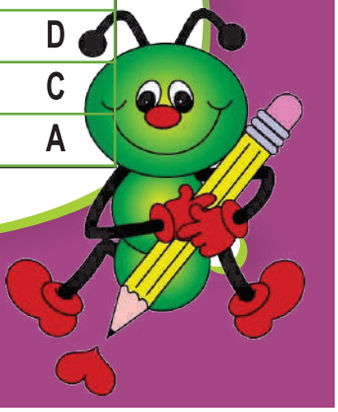


2017 QUESTION PAPER - ANSWER KEY

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

2018 QUESTION PAPER - ANSWER KEY

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



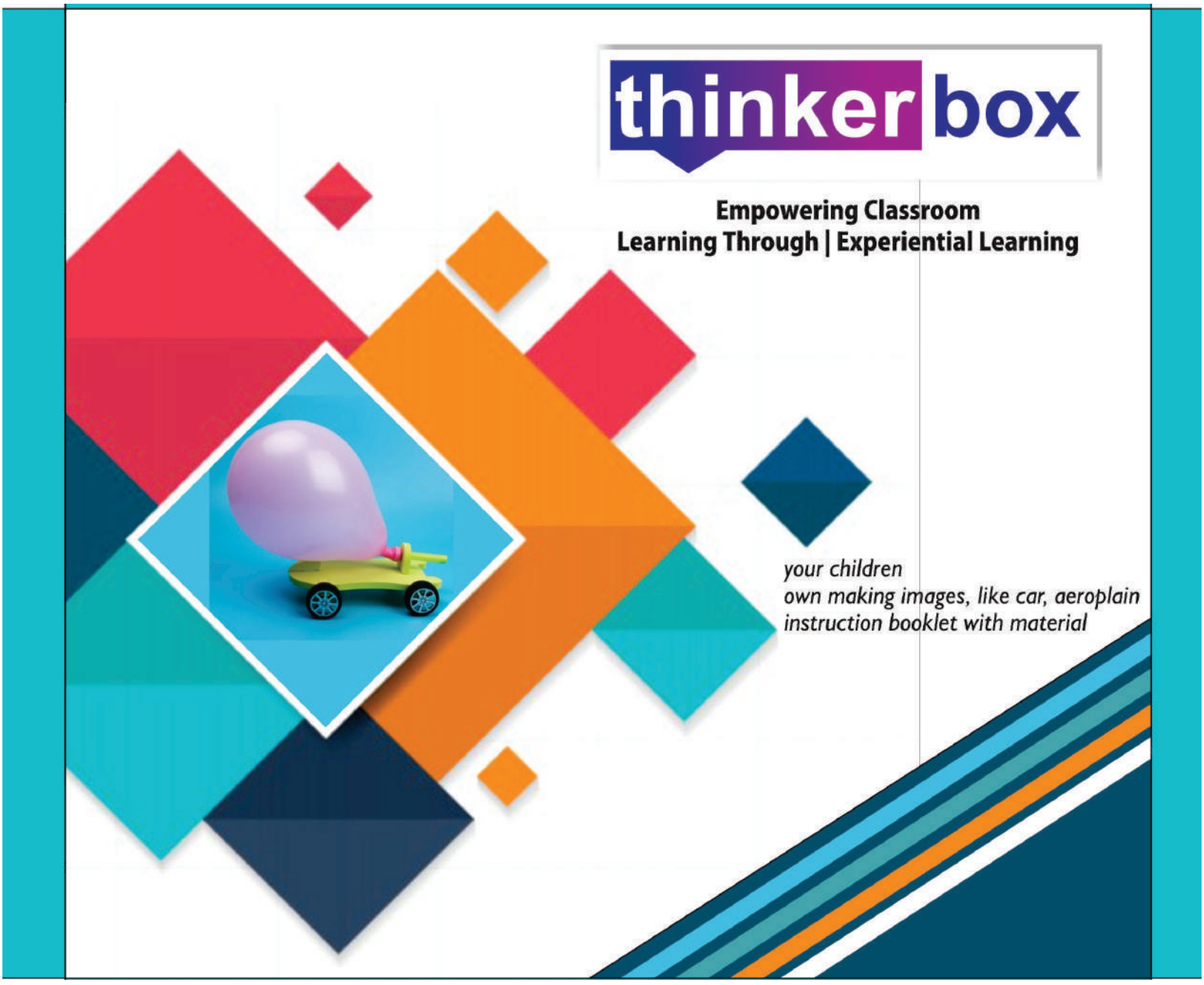
2019 QUESTION PAPER - ANSWER KEY

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

REVISION QUESTION PAPER - ANSWER KEY

Question and Answer
not given

Thinker Box Add Page



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