

**SOF NATIONAL SCIENCE
OLYMPIAD 2023-24**

CLASS
4

QUESTION
PAPER SET

A

DO NOT OPEN THIS BOOKLET UNTIL ASKED TO DO SO

Total Questions: 35 | Time: 1 hr.

Guidelines for the Candidate

1. You will get additional ten minutes to fill up information about yourself on the OMR Sheet, before the start of the exam.
2. Write your **Name, School Code, Class, Section, Roll No.** and **Mobile Number** clearly on the **OMR Sheet** and do not forget to sign it. We will share your marks / result and other information related to SOF exams on your mobile number.
3. The Question Paper comprises three sections:
Logical Reasoning (5 Questions), **Science** (25 Questions) and **Achievers Section** (5 Questions)
Each question in Achievers Section carries 2 marks, whereas all other questions carry one mark each.
4. All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
5. There is only ONE correct answer. Choose only ONE option for an answer.
6. To mark your choice of answers by darkening the circles on the OMR Sheet, use **HB Pencil** or **Blue / Black ball point pen** only. E.g.
Q. 16: Raj goes to school on a bicycle. Which of these safety rules he should follow?
A. He should give signals before taking turns. B. He should keep to the right of the road.
C. He should cross the road by using zebra crossing. D. All of these
As the correct answer is option A, you must darken the circle corresponding to option A on the OMR Sheet.
7. Rough work should be done in the blank space provided in the booklet.
8. Return the OMR Sheet to the invigilator at the end of the exam.
9. Please fill in your personal details in the space provided before attempting the paper.
10. **For classes 8, 9 & 10, "Innovation Challenge" is being conducted by Techfest IIT Bombay in association with SOF. For details, please visit : www.sofworld.org/sof-techfest-iit-bombay-innovation-challenge2023**

16. ● (B) (C) (D)

Name:.....

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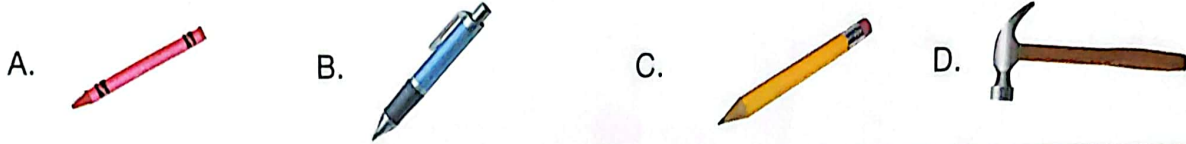
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LOGICAL REASONING

1. Select the odd one out.



2. How many curved lines are there in the given word?

BROWN

- A. 2 B. 3 C. 4 D. More than 4

3. Which of the following options will complete the given number pattern?



- A. 45 B. 49 C. 55 D. 42

4. Select the correct mirror image of the given combination of letters and numbers.

A. **ƆM5C**
C. **ƆM5C**

B. **F7M5C**
D. **F7M5C**

F7M5C

Mirror

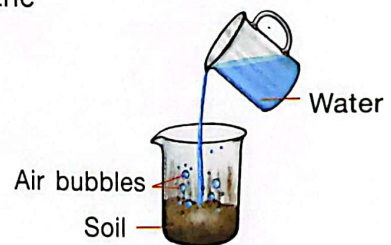
5. In a certain code language, HERO is coded as \$17@ and POLO is coded as 2@3@. How will HELP be coded in the same code language?

- A. \$132 B. \$7@3 C. \$312 D. @\$13

SCIENCE

6. Neerja took some soil in a beaker and poured water over it. She observed air bubbles coming out from the soil as shown in the given figure. This shows that

- A. Soil contains water
B. Soil contains air
C. Soil contains humus
D. None of these.



SPACE FOR ROUGH WORK

7. Rubina took a piece of fabric and burnt it. On burning, it gave the smell of burning celery. This fabric could be made from
- A. Cotton B. Wool C. Nylon D. Linen.
-

8. The ice cream shown in the given picture is left on the table for an hour. What can be observed after a while?
- A. The ice cream starts to melt.
B. The ice cream starts to condense.
C. The ice cream starts to contract.
D. The ice cream starts to freeze.

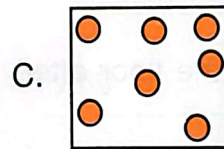
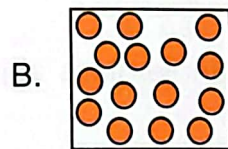
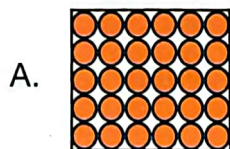


9. Animal shown here is adapted to live at very cold places because it has _____.
- A. Capacity to store water in stomach
B. Flippers for swimming
C. Gills to breathe
D. Layer of fat under skin



10. Tree X grows in desert and has small leaves to prevent water loss through transpiration. Identify X.
- A. Sugarcane B. *Acacia* C. Mango D. *Wolffia*
-

11. Aman bought a bottle of perfume. Which diagram correctly depicts the arrangement of perfume molecules inside the bottle?



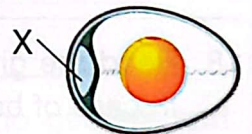
D. None of these

12. Select the odd one out on the basis of types of simple machine.

A. See-saw B. Pliers C. Claw hammer D. Screwdriver

13. Identify the part labelled as 'X' in the given figure.

A. Yolk B. Air space
C. Albumen D. Embryo



14. Which of the following leaves belongs to a terrestrial plant?



D. All of these

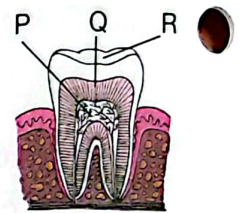
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15. Match column I with column II and select the correct option.

Column I				Column II	
(Clothing item)				(Place)	
(a) <i>Neriyathu</i>				(i) Gujarat	
(b) <i>Phiran</i>				(ii) Maharashtra	
(c) <i>Kediyu</i>				(iii) Kerala	
(d) <i>Nauvari saree</i>				(iv) Kashmir	
(a)	(b)	(c)	(d)		
A. (i)	(ii)	(iii)	(iv)		
B. (iv)	(iii)	(i)	(ii)		
C. (ii)	(i)	(iv)	(iii)		
D. (iii)	(iv)	(i)	(ii)		

16. The given figure shows structure of a tooth. Select the correct option regarding labelled parts P, Q and R.

- A. R is the hardest substance of our body.
- B. Q is a bone-like material that supports R.
- C. P has nerves and blood vessels.
- D. All of these



17. Select the correct option.

Do's	Don'ts
A. Always keep the bathroom floor wet	Keep the soap in the soap case when not in use
B. Leave your toys on the floor after playing	Handle glass objects carefully
C. While walking, cross the road only at the zebra crossing	Run around the class corridor
D. Wear only synthetic clothes while working in the kitchen	Touch electrical appliances with wet hands

18. Read the given statement and select the correct option to fill in the blanks.

In case of burn, put the affected area under (i) water and in case of a bee sting apply (ii).

(i)	(ii)
A. Hot	Baking soda
B. Cold	Chilli powder
C. Hot	Oil
D. Cold	Baking soda

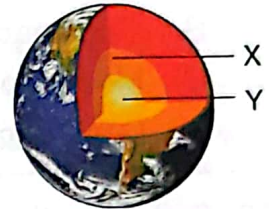
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19. A ball is kept on the roof of a tall building. Which type of mechanical energy it possesses?
A. Kinetic energy B. Geothermal energy C. Potential energy D. Chemical energy

20. Jantar Mantar in Delhi was built to predict the time and movements of the Sun, Moon, and planets by _____ .
A. Sawai Jai Singh B. Aryabhata C. Varahamihira D. Bhaskara

21. Which of the following statements is/are INCORRECT regarding the parts labelled as X and Y in the given picture?

- (i) X is a liquid layer.
- (ii) Copper and magnesium are the major elements present in Y.
- (iii) X is the thickest layer of Earth.
- (iv) Y is a solid layer.



- A. (i) and (ii) only
- B. (i) and (iv) only
- C. (i), (iii) and (iv) only
- D. (ii) and (iii) only

22. Banana plant grows from _____ .

- A. Underground stem
- B. Root
- C. Leaf
- D. Flower

23. The main function of down feather is

- A. To keep the bird's body cool
- B. To give shape to the body of bird
- C. To keep the bird's body warm
- D. To help the bird in changing direction while flying.

24. How many food items in the given list are rich in proteins?

Sugar,	Tomato,	Egg,	Corn,	Cabbage,
Fish,	Pulses,	Ghee,	Banana,	Sunflower oil

- A. 2
- B. 5
- C. 3
- D. 7

25. Unscramble the given letters to find out the name of a professional who gathers and writes news for newspapers.

- A. URSTJOLINA B. ETNECARRP C. CRERGNEGROE D. HCNCIEMA

26. The needle of a magnetic compass always points towards _____ direction.

- A. North
- B. South
- C. West
- D. East

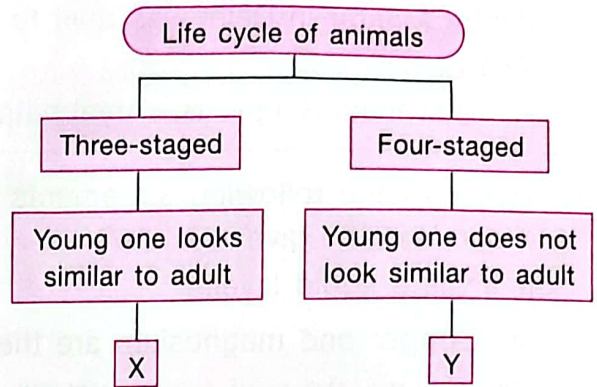
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27. Which of the following is NOT an excretory organ?

- A. Lungs B. Kidneys C. Oesophagus D. Skin

28. Study the given classification chart.

Which one of the following options correctly represents X and Y?



- | | |
|--------------|-------------|
| X | Y |
| A. Mosquito | Cockroach |
| B. Cockroach | Mosquito |
| C. Mosquito | Frog |
| D. Cockroach | Grasshopper |

29. Soil formation occurs due to the action of _____ on rocks over many years.

- A. Wind B. Rain
C. Heat of the Sun D. All of these

30. The standard unit of measuring capacity is _____.

- A. Gram B. Kilometre C. Litre D. Celsius

ACHIEVERS SECTION

31. A group of students carried out an experiment. They filled three identical beakers X, Y and Z with the same amount of water and kept them open at three different places. After 2 hours, they recorded the result as shown in the given table. However, they forgot to mention the places where the beakers had been kept.

Beaker	Amount of water in the beginning (mL)	Amount of water after 2 hours (mL)
X	100	60
Y	100	85
Z	100	99

With reference to the given results, which of the following options correctly identifies the places where the beakers were kept?

- | | | |
|--------------------|-----------------|-----------------|
| X | Y | Z |
| A. Open sunny area | Classroom | Closed cupboard |
| B. Closed cupboard | Classroom | Open sunny area |
| C. Classroom | Closed cupboard | Open sunny area |
| D. Open sunny area | Closed cupboard | Classroom |

SPACE FOR ROUGH WORK

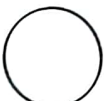





32. Study the following actions that were carried out.

1. Pushing a 2 kg skateboard on a flat rough ground over a distance of 2 m.
2. Pushing a 2 kg bag of flour on a flat rough ground over a distance of 2 m.
3. Pushing a 5 kg sack of rice on a flat rough ground over a distance of 2 m.
4. Pushing a 5 kg sack of onions up a rough slope over a distance of 2 m.

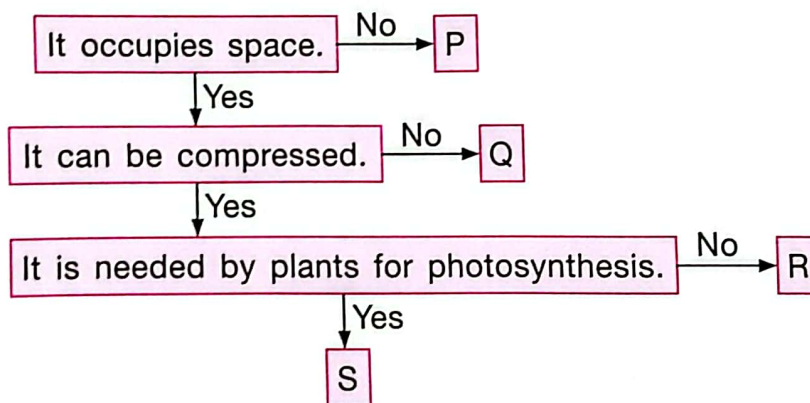
Arrange the above actions according to the amount of force required to carry out the actions, starting with the action that uses the least force.

- A. 1, 2, 4, 3 B. 4, 3, 2, 1 C. 1, 2, 3, 4 D. 4, 1, 2, 3

33. Mihika observed Waning Gibbous Moon on 14th June, 20XX. Which phase of Moon will she observe on (i) 18th June, 20XX and (ii) 25th June, 20XX?

- A. (i) -  , (ii) -  B. (i) -  , (ii) - 
- C. (i) -  , (ii) -  D. (i) -  , (ii) - 

34. Study the given flow chart and identify P, Q, R and S.



- | P | Q | R | S |
|-------------|--------------|--------------|----------------|
| A. Gel bead | Water vapour | Water | Soil |
| B. Soil | Eraser | Nail | Sunlight |
| C. Light | Feather | Tissue paper | Oxygen |
| D. Shadow | Stone | Oxygen | Carbon dioxide |

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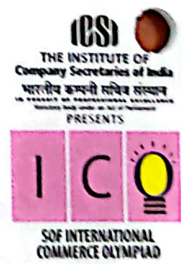
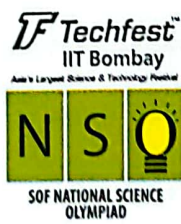
35. Study the given food chain.

Grass → Grasshopper → Frog → Snake → Hawk

What will happen if whole population of tertiary consumer is removed from the given food chain?

- A. The population of frog will decrease.
- B. The population of hawk will decrease.
- C. The population of grasshopper will increase.
- D. The population of grass will decrease.

SPACE FOR ROUGH WORK



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