NSO

SOF NATIONAL SCIENCE OLYMPIAD

Level 2 | SOLVED PAPERS

5 Years (2012-2014, 2016-2017)

CLASS 4



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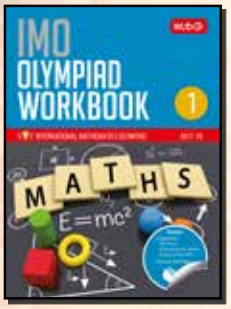
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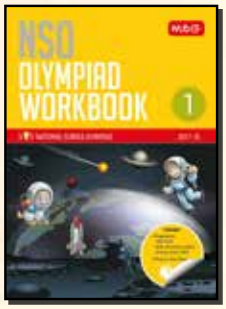
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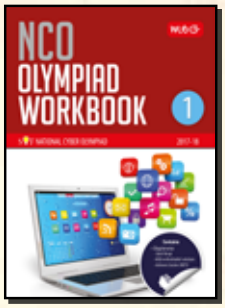
CLASS 1



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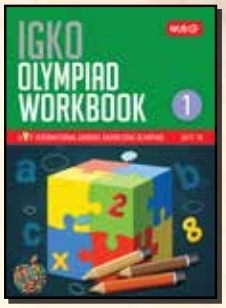
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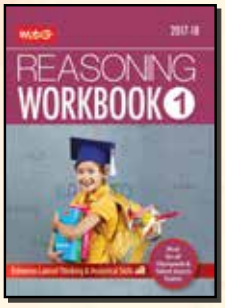
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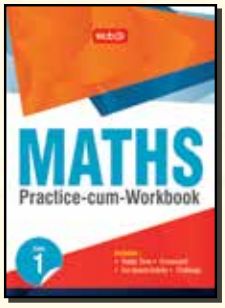
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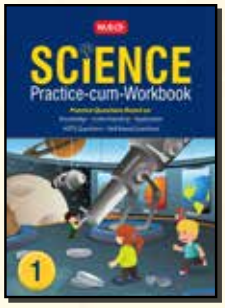
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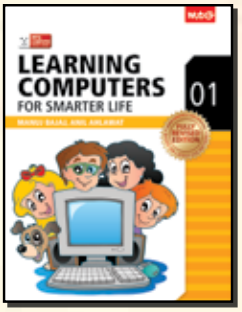
Reasoning



Maths Practice-cum-Workbook



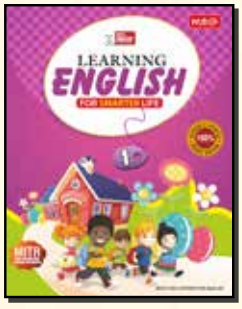
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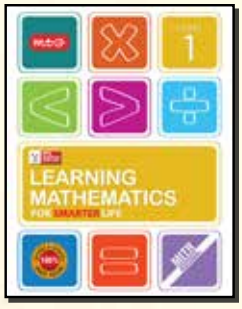
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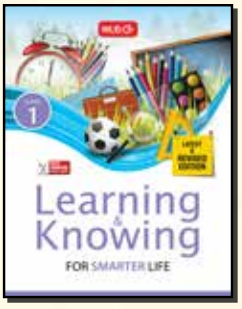
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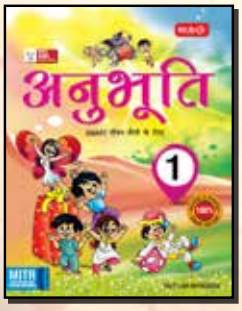
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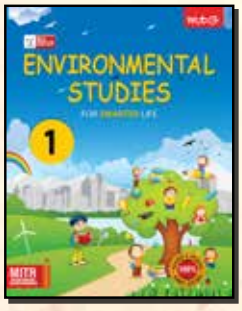
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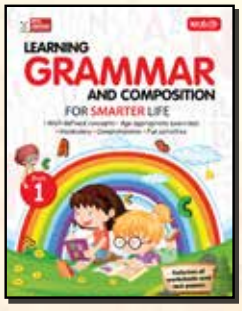
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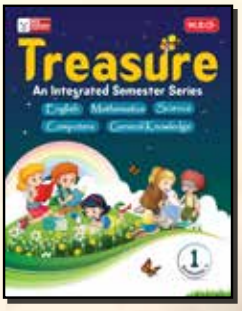
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Learning Grammar



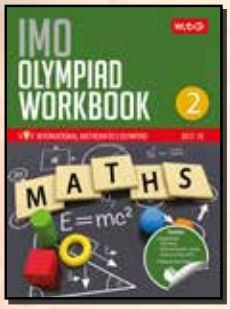
Treasure

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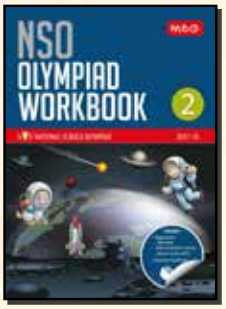
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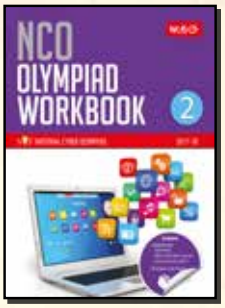
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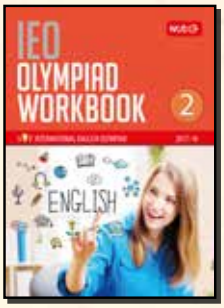
International Mathematics Olympiad



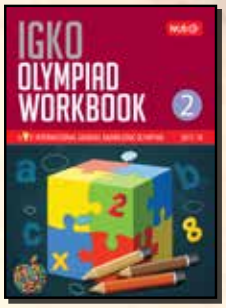
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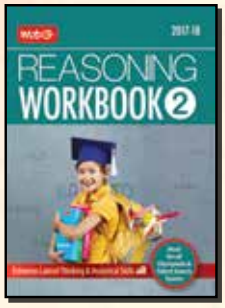
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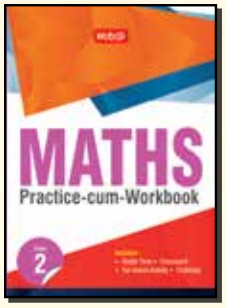
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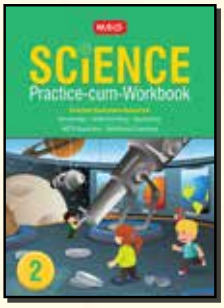
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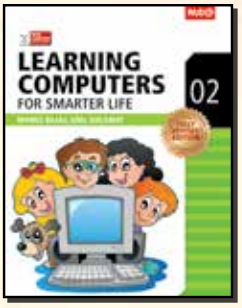
Reasoning



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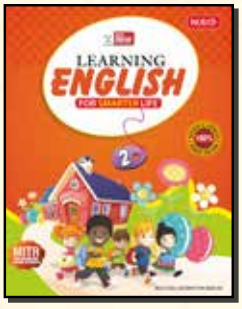
Science Practice-cum-Workbook



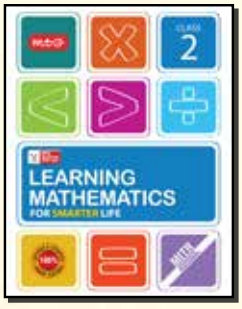
Learning Computers



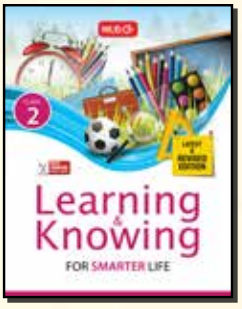
Learning Science



Learning English



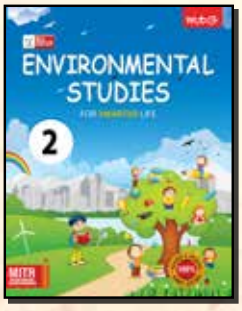
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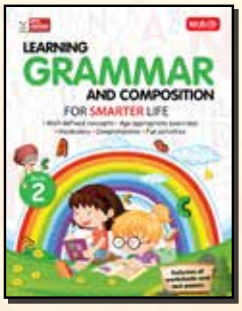
Learning & Knowing



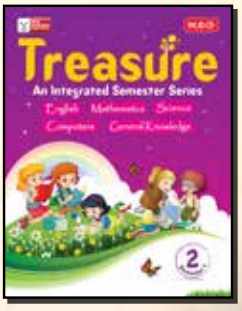
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Environmental Studies



Learning Grammar



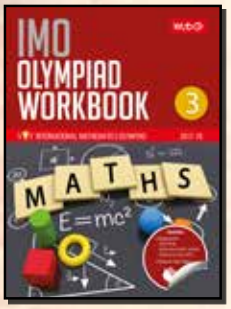
Treasure

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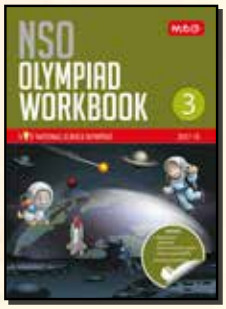
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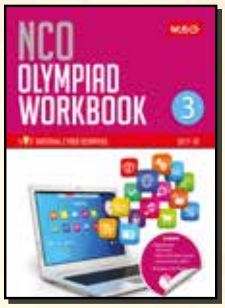
CLASS 3



International Mathematics Olympiad



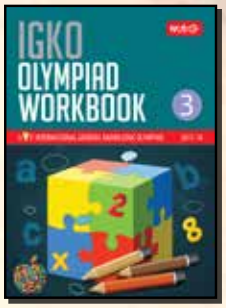
National Science Olympiad



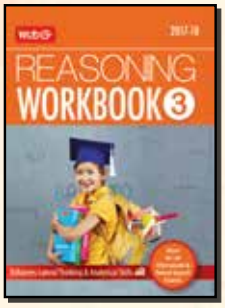
National Cyber Olympiad



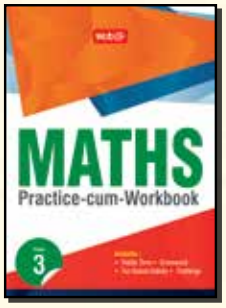
International English Olympiad



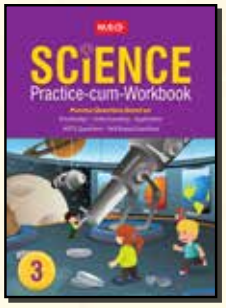
International General Knowledge Olympiad



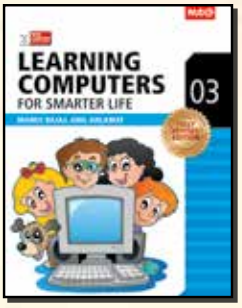
Reasoning



Maths Practice-cum-Workbook



Science Practice-cum-Workbook



Learning Computers



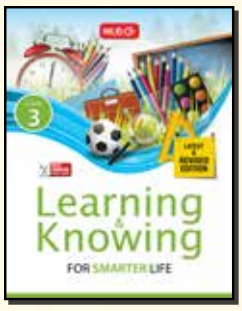
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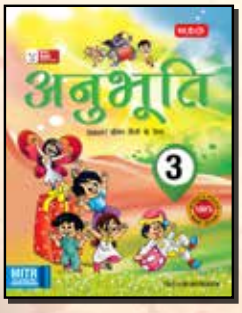
Learning English



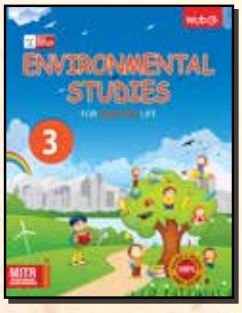
Learning Mathematics



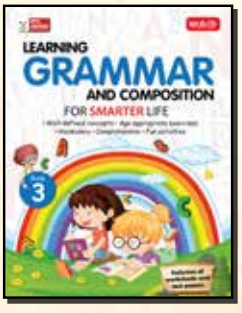
Learning & Knowing



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Environmental Studies



Learning Grammar



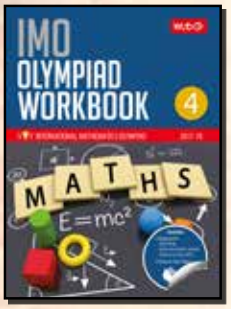
Treasure

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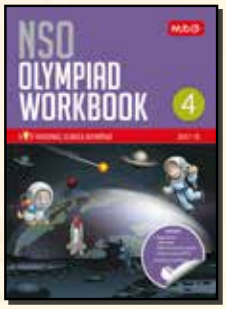
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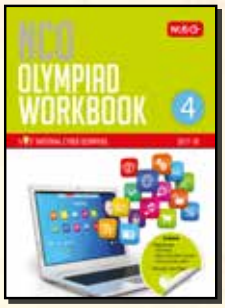
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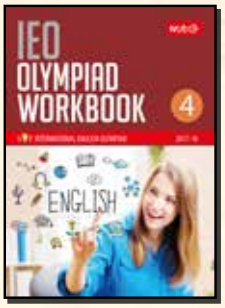
International Mathematics Olympiad



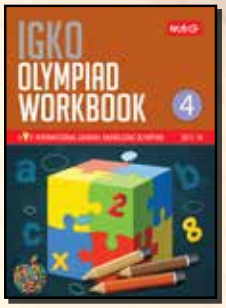
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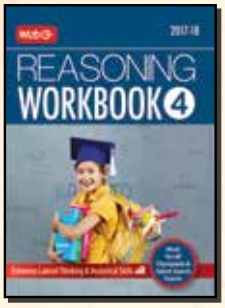
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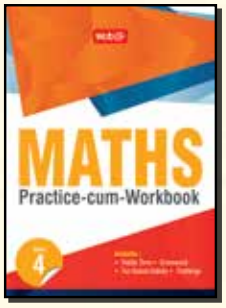
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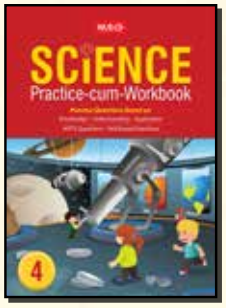
International General Knowledge Olympiad



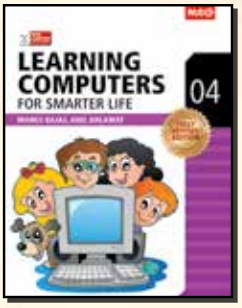
Reasoning



Maths Practice-cum-Workbook



Science Practice-cum-Workbook



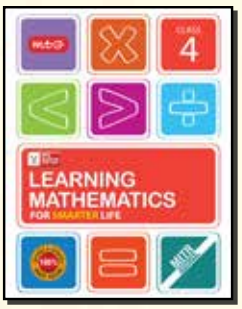
Learning Computers



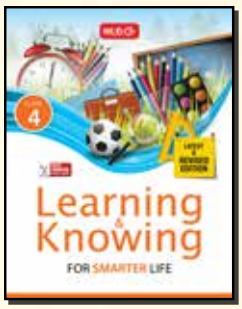
Learning Science



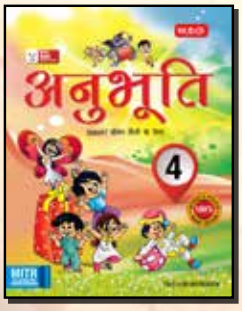
Learning English



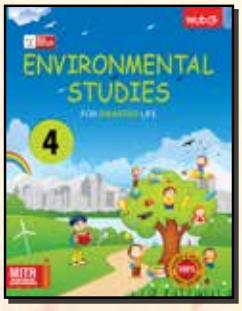
Learning Mathematics



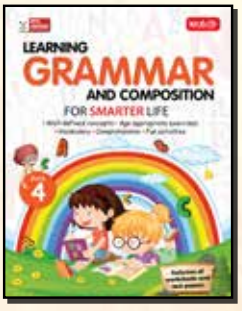
Learning & Knowing



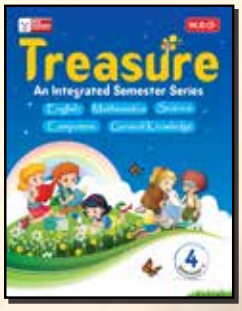
Anubhuti



Environmental Studies



Learning Grammar



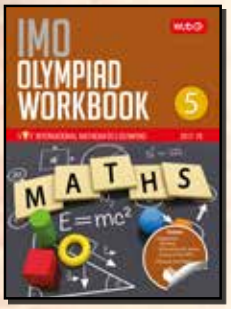
Treasure

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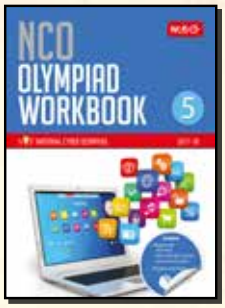
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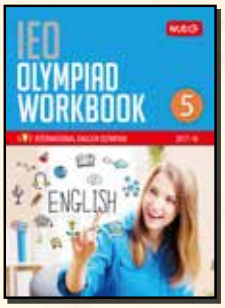
International Mathematics Olympiad



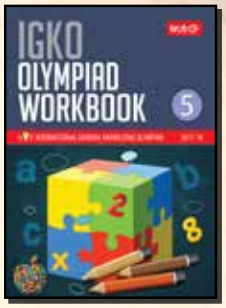
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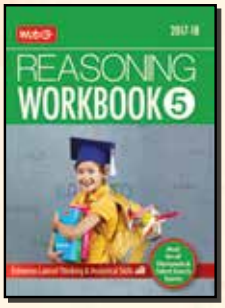
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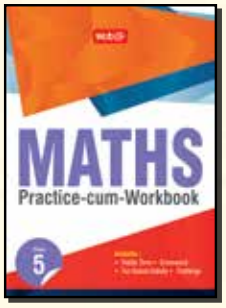
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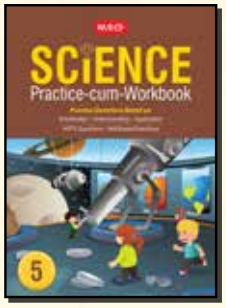
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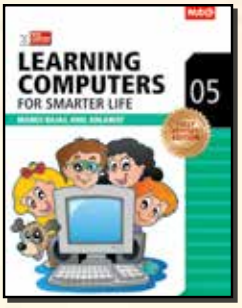
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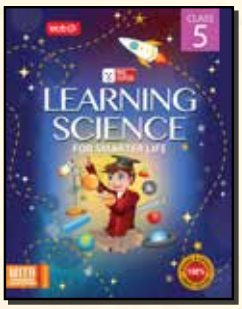
Maths Practice-cum-Workbook



Science Practice-cum-Workbook



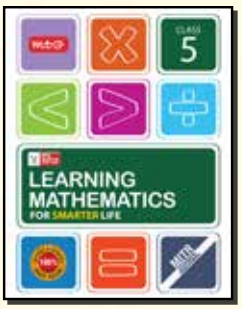
Learning Computers



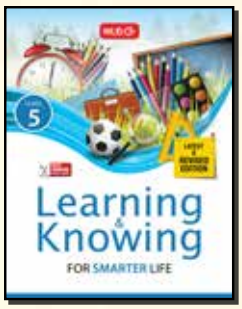
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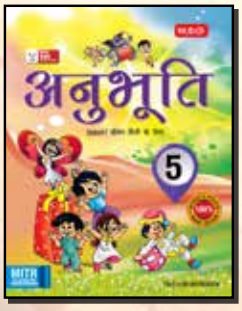
Learning English



Learning Mathematics



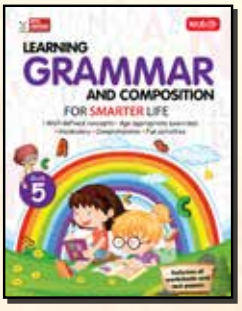
Learning & Knowing



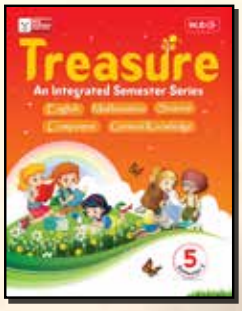
Anubhuti



Environmental Studies



Learning Grammar



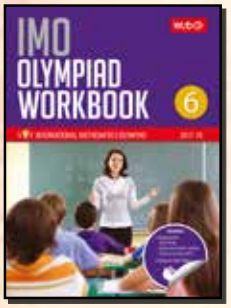
Treasure

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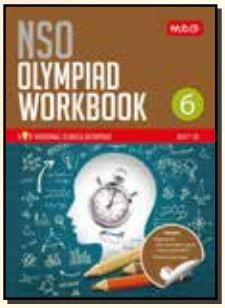
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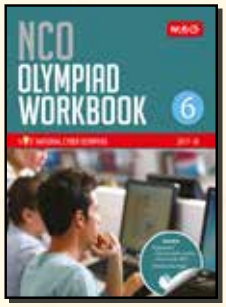
CLASS 6



International Mathematics Olympiad



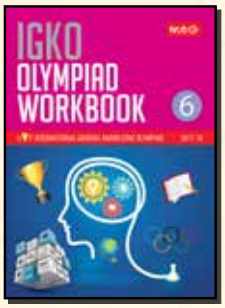
National Science Olympiad



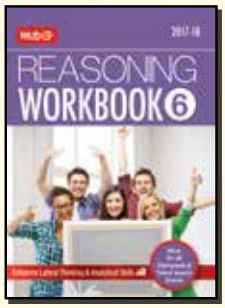
National Cyber Olympiad



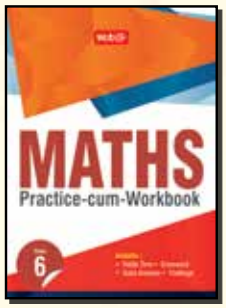
International English Olympiad



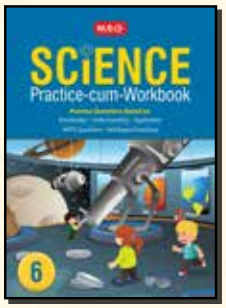
International General Knowledge Olympiad



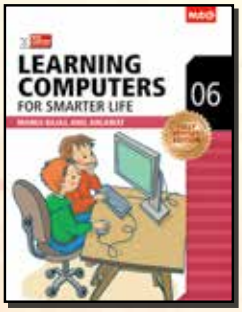
Reasoning



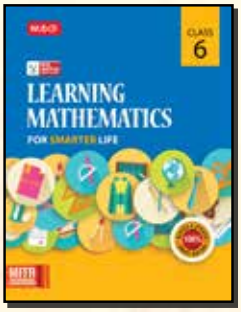
Maths Practice-cum-Workbook



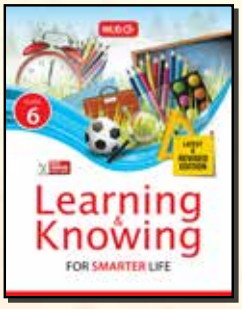
Science Practice-cum-Workbook



Learning Computers



Learning Mathematics



Learning & Knowing



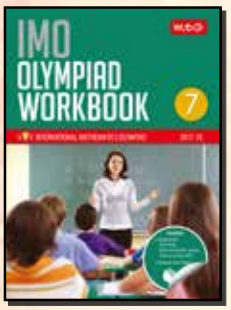
Anubhuti

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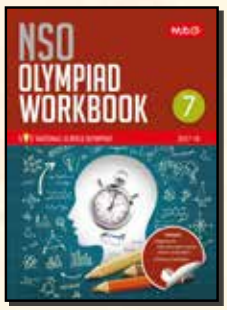
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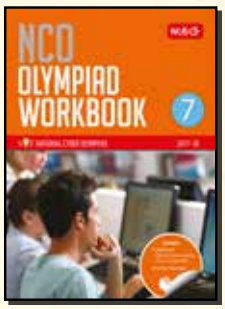
CLASS 7



International Mathematics Olympiad



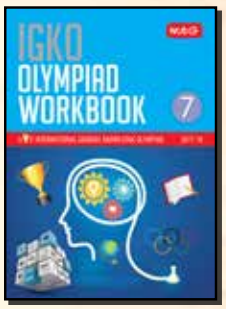
National Science Olympiad



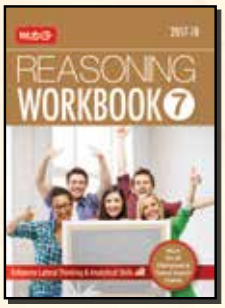
National Cyber Olympiad



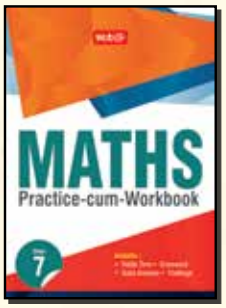
International English Olympiad



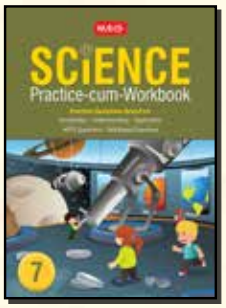
International General Knowledge Olympiad



Reasoning



Maths Practice-cum-Workbook



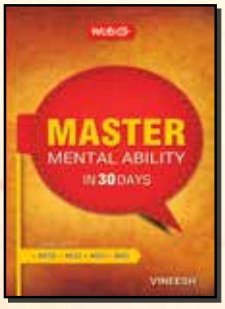
Science Practice-cum-Workbook



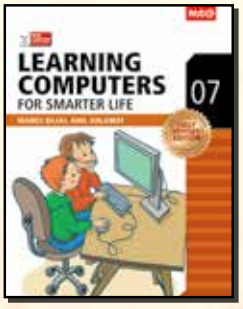
Math IQ Challenge



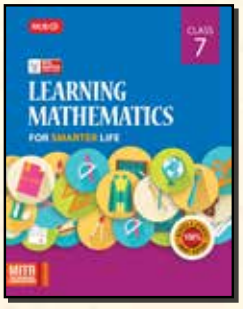
Science IQ Challenge



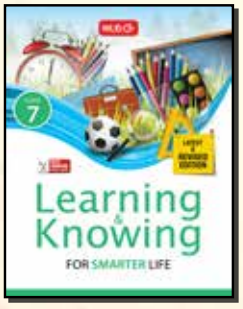
Master Mental Ability in 30 Days



Learning Computers



Learning Mathematics



Learning & Knowing



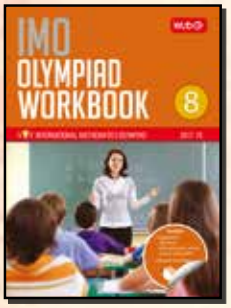
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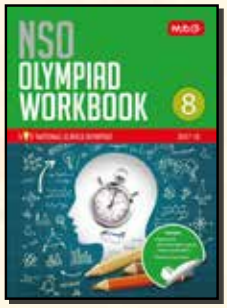
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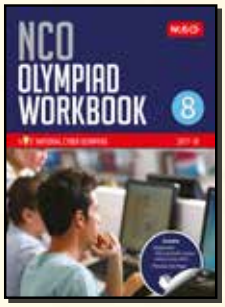
CLASS 8



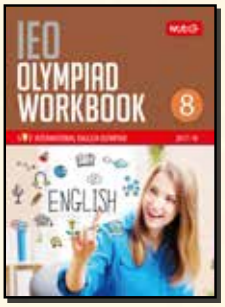
International Mathematics Olympiad



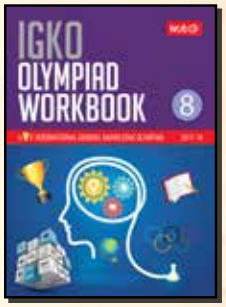
National Science Olympiad



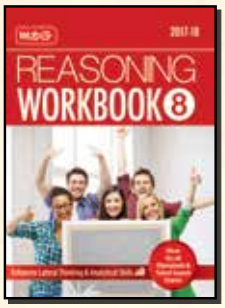
National Cyber Olympiad



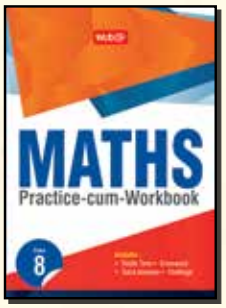
International English Olympiad



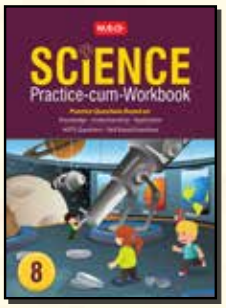
International General Knowledge Olympiad



Reasoning



Maths Practice-cum-Workbook



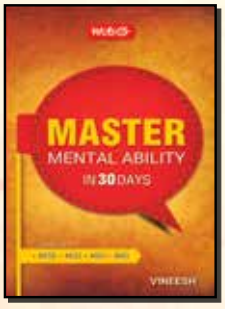
Science Practice-cum-Workbook



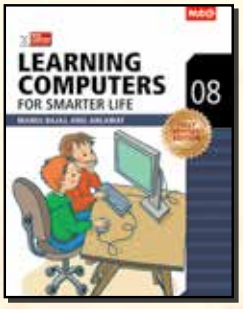
Math IQ Challenge



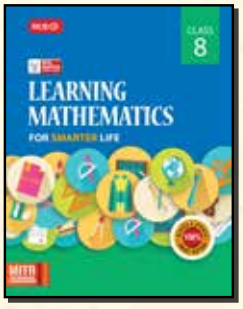
Science IQ Challenge



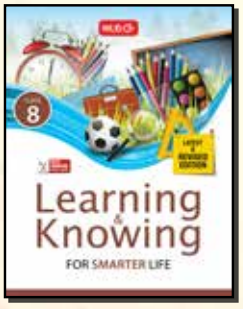
Master Mental Ability in 30 Days



Learning Computers



Learning Mathematics



Learning & Knowing



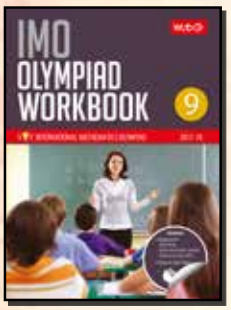
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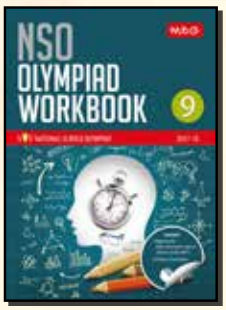
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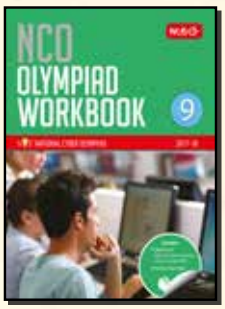
CLASS 9



International Mathematics Olympiad



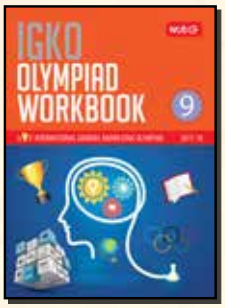
National Science Olympiad



National Cyber Olympiad



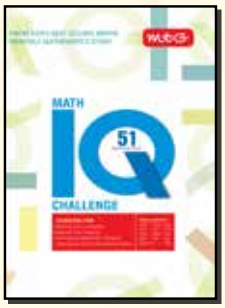
International English Olympiad



International General Knowledge Olympiad



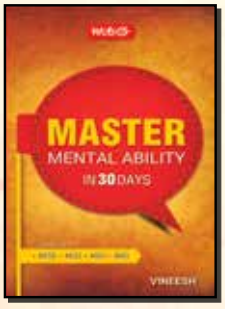
Reasoning



Math IQ Challenge



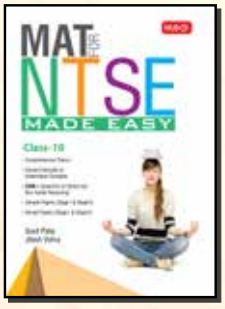
Science IQ Challenge



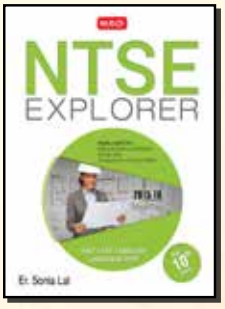
Master Mental Ability in 30 Days



Psychology of Success



MAT for NTSE



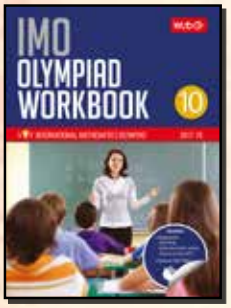
NTSE Explorer

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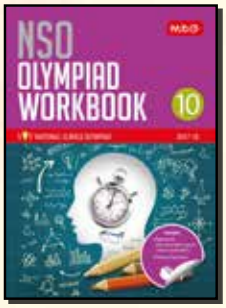
MTG WORKBOOKS / OLYMPIAD BOOKS

Check complete details on www.mtg.in

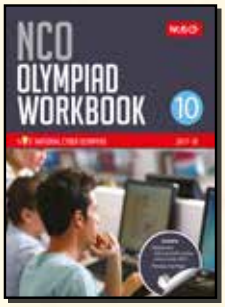
CLASS 10



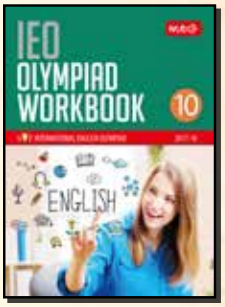
International Mathematics Olympiad



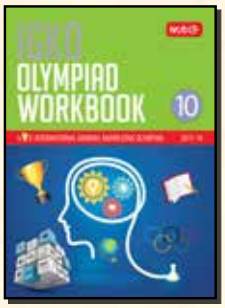
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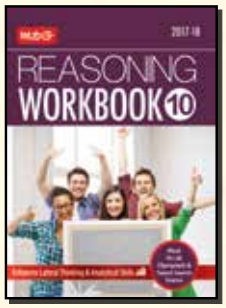
National Cyber Olympiad



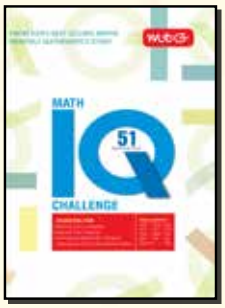
International English Olympiad



International General Knowledge Olympiad



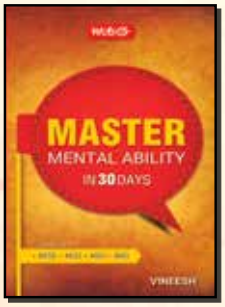
Reasoning



Math IQ Challenge



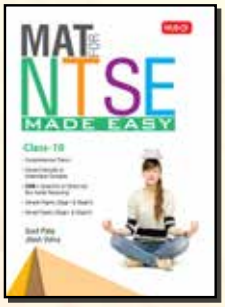
Science IQ Challenge



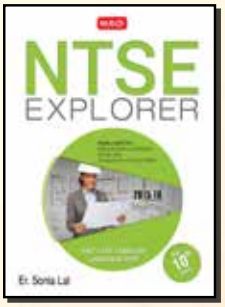
Master Mental Ability in 30 Days



Psychology of Success



MAT for NTSE



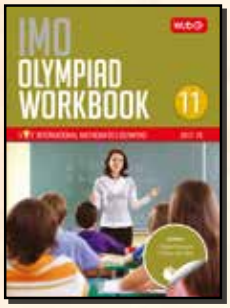
NTSE Explorer

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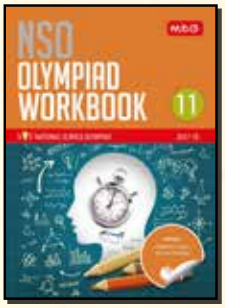
MTG WORKBOOKS / OLYMPIAD BOOKS

Check complete details on www.mtg.in

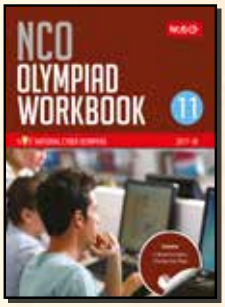
CLASS 11



International Mathematics Olympiad



National Science Olympiad



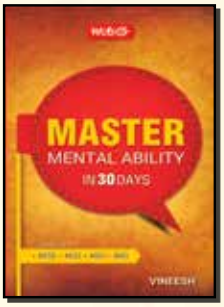
National Cyber Olympiad



Math IQ Challenge



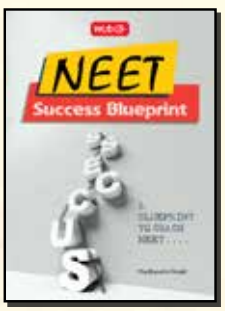
Science IQ Challenge



Master Mental Ability in 30 Days



Psychology of Success



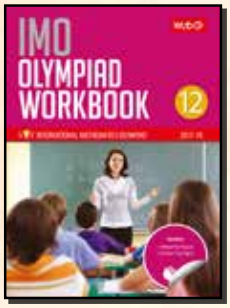
NEET Success Blueprint

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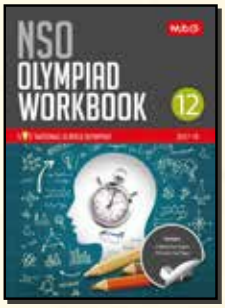
MTG WORKBOOKS / OLYMPIAD BOOKS

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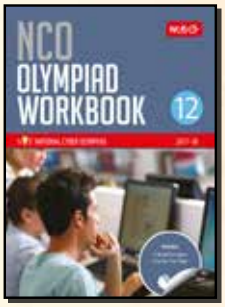
CLASS 12



International Mathematics Olympiad



National Science Olympiad



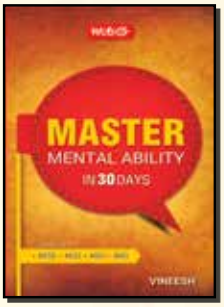
National Cyber Olympiad



Math IQ Challenge



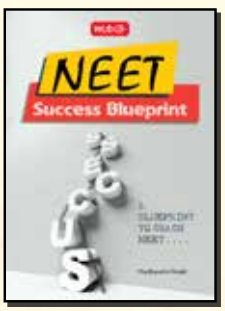
Science IQ Challenge



Master Mental Ability in 30 Days



Psychology of Success



NEET Success Blueprint

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mtG

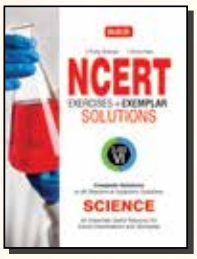
✓ Error-free ✓ Easy Language ✓ Authentic Solutions ✓ Fully Solved by Expts

NCERT

EXERCISES + EXEMPLAR SOLUTIONS

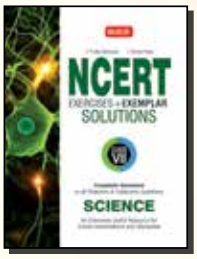
For Classes 6, 7, 8, 9, 10, 11 & 12

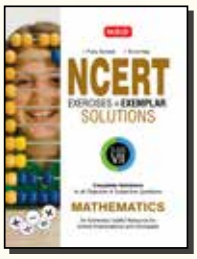
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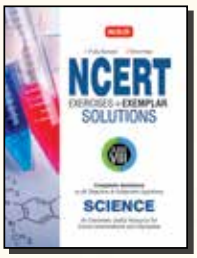


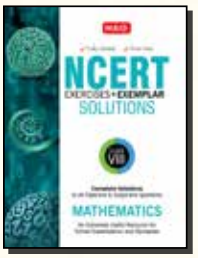
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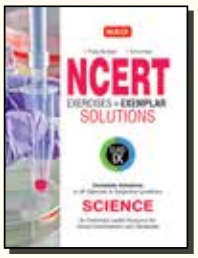


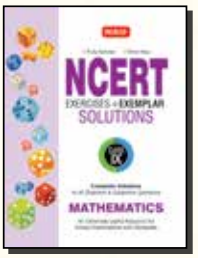
Class 8



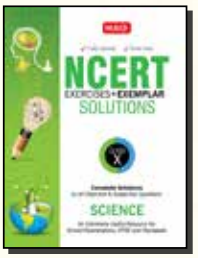


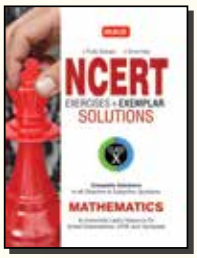
Class 9





Class 10

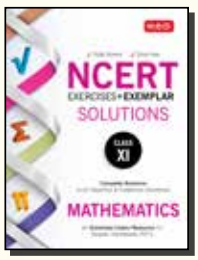




11 Class

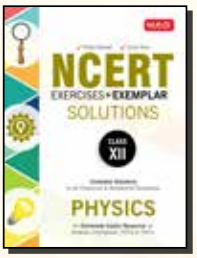


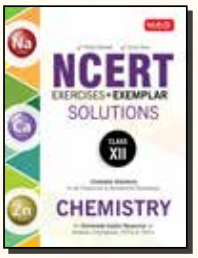


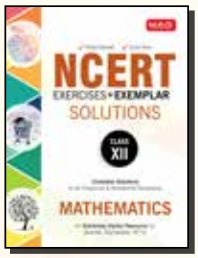


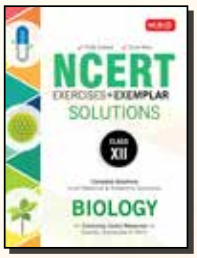


12 Class









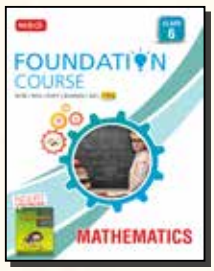
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JEE (Main & Advanced) | NEET | BOARDS | OLYMPIAD | NTSE

FOUNDATION COURSE

For Classes 6, 7, 8, 9 & 10

Class 6



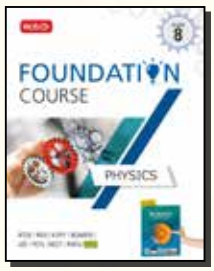


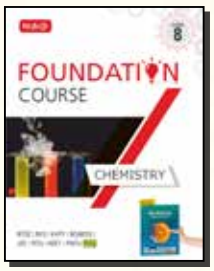
Class 7

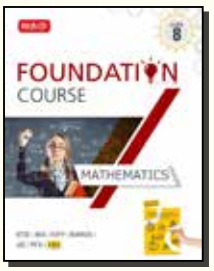


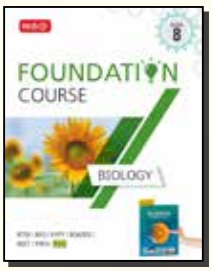


Class 8

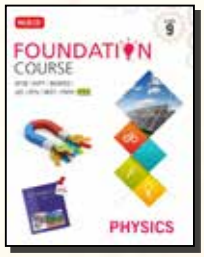


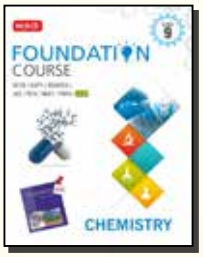


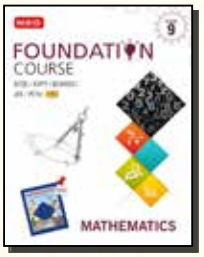


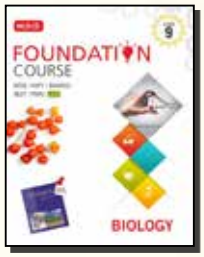


Class 9

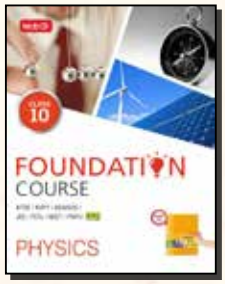


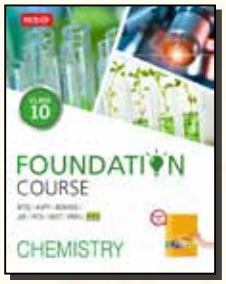


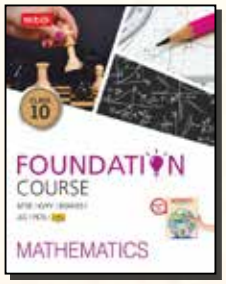


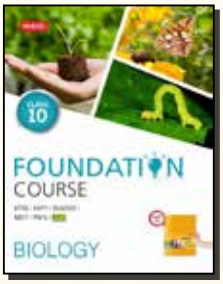


Class 10









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IMPORTANT INSTRUCTIONS

Exam Date : 11th February 2018.

Center of exam : As assigned by SOF on your admit card. Kindly coordinate with your school coordinator for exact information about exam. Write to **info@sofworld.org** for any enquiry.

Mode of exam : IEO/NSO/IMO level 2 for academic year 2017-18 will be a paper-pen objective test.

Pattern of the exams :

INTERNATIONAL ENGLISH OLYMPIAD

Class	Section	No. of Questions	Marks per Question	Total Marks
3 to 4	Word and Structure Knowledge, Reading	30	1	30
	Achievers Section	5	2	10
	Grand Total	35		40
5 to 12	Word and Structure Knowledge, Reading	45	1	45
	Achievers Section	5	3	15
	Grand Total	50		60

NATIONAL SCIENCE OLYMPIAD

Class	Section	No. of Questions	Marks per Question	Total Marks
3 to 4	Science	30	1	30
	Achievers Section	5	2	10
	Grand Total	35		40
5 to 10	Science	45	1	45
	Achievers Section	5	3	15
	Grand Total	50		60
11 and 12	Physics & Chemistry	25	1	25
	Achievers Section	5	3	15
	Mathematics/Biology	20	1	20
	Grand Total	50		60

INTERNATIONAL MATHEMATICS OLYMPIAD

Class	Section	No. of Questions	Marks per Question	Total Marks
3 to 4	Mathematics	30	1	30
	Achievers Section	5	2	10
	Grand Total	35		40
5 to 12	Mathematics	45	1	45
	Achievers Section	5	3	15
	Grand Total	50		60

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NSO

CLASS 4

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- 14th NSO - Level-2 (2012)
- 15th NSO - Level-2 (2013)
- 16th NSO - Level-2 (2014)
- 17th NSO-Level 2 was an online exam. (2015)
- 18th NSO - Level-2 (2016)
- 19th NSO - Level-2 (2017)

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SCIENCE OLYMPIAD FOUNDATION

14th NSO

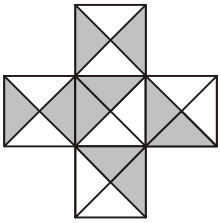
LEVEL - 2

Year 2011-12

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MENTAL ABILITY

1. What fraction of the figure is shaded?



(A) 2/5
(B) 1/2
(C) 5/6
(D) 1/3

---

2. Jamal's clues about his mystery number are shown in the box. What is Jamal's mystery number?

My number has
5 tens
8 thousands
2 ones
6 ten thousands
0 hundreds

(A) 5,826
(B) 6,285
(C) 68,052
(D) 86,520

---

3. The given table shows the number of buttons that were made at a button factory each week for three weeks. Which of the following shows the weeks in order from the week with the GREATEST number of buttons made to the week with the LEAST number of buttons made?

Buttons Made

Week	Number of Buttons
Week 1	84,503
Week 2	80,968
Week 3	84,551

(A) Week 1, Week 3, Week 2
(B) Week 2, Week 3, Week 1
(C) Week 2, Week 1, Week 3
(D) Week 3, Week 1, Week 2

---

4. The given chart shows the number of college athletes who participated in four different sports. Find the difference between the total number of men and women who participated in all the sports?

Sports Participation

Sport	Women	Men
Indoor Track	15,460	16,943
Outdoor Track	18,220	20,401
Soccer	17,520	18,238
Basketball	14,365	15,710

(A) 25,758
(B) 33,230
(C) 35,758
(D) 5727

SPACE FOR ROUGH WORK

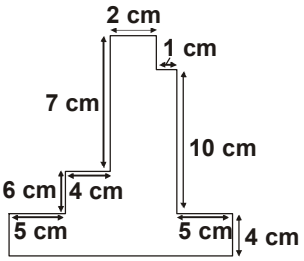
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5. How many horizontal lines are there in the letters given below ?

MADE

(A) 3 **(B)** 4 **(C)** 5 **(D)** 2

6. Find the perimeter of the given figure (not drawn to scale).



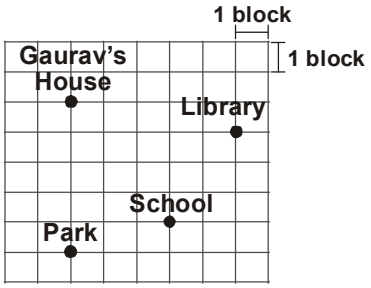
(A) 68 cm

(B) 65 cm

(C) 57 cm

(D) 71 cm

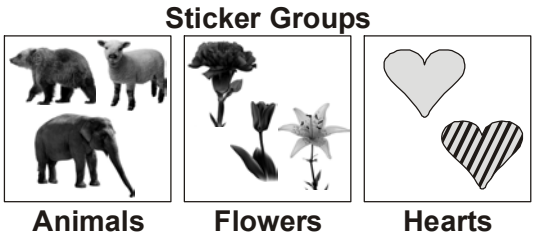
7. The given grid shows the locations of some places in Gaurav's neighborhood. Moving along the grid lines, what is the least number of blocks from Gaurav's house to the school?



(A) 3 **(B)** 4

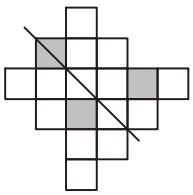
(C) 6 **(D)** 7

8. Rashi wants to decorate her journal with stickers. She decided to choose 1 animal, 1 flower, and 1 heart from each of the sticker groups shown here. What is the total number of different combinations of 1 animal, 1 flower, and 1 heart that Rashi can choose?



(A) 8 **(B)** 9 **(C)** 11 **(D)** 18

9. How many minimum squares must be shaded to make the figure symmetric along the given line of symmetry ?



(A) 2 **(B)** 3

(C) 4 **(D)** 1

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10. The sum of the place values of the digit 8 in 38623, 57800 and 81279 is _____

(A) 80800 **(B)** 88008 **(C)** 88080 **(D)** 88800

SCIENCE

11. Eagle makes nest high in the dead trees. All of the dead trees in an area are knocked down. Why does the number of eagles in the area decrease?

(A) The eagles start nesting in live trees instead of dead trees.

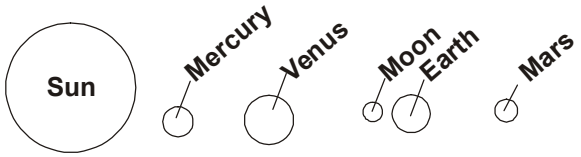
(B) The eagles no longer have a good place to build nests.

(C) The eagles no longer have materials to build nests.

(D) The eagles start nesting on the ground.

---

12. The given diagram shows some of the objects in our solar system. Which of these objects has a pattern of revolution that differs the most from the others?



(A) Mercury **(B)** Venus **(C)** Moon **(D)** Earth

---

13. Which pair of organ systems do you use when you take a bite of an apple, chew it, and swallow it?

(A) Nervous and circulatory **(B)** Muscular and digestive

(C) Respiratory and skeletal **(D)** Skeletal and circulatory

---

14. Sarah puts 10 marigold seeds in a pot of sand and 10 marigold seeds in a pot of soil. She then puts both pots near a window and watered them with the same amount of water everyday. After three weeks, Sarah measured the heights of the marigold seedlings in each pot. What was Sarah probably testing?

(A) How pot size affects the growth of marigolds?

(B) Which type of marigold grows best?

(C) Whether marigolds grow better in soil or in sand?

(D) How water affects the growth of marigolds?

---

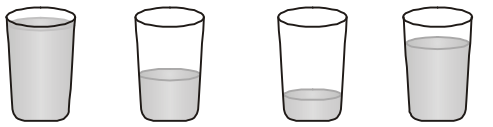
15. Which of these is a leap year?

(A) 1915 **(B)** 1986 **(C)** 1956 **(D)** 1947

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16. Different amounts of liquids evaporate at different rates. Each glass shown in the diagram was filled to the top with a different amount of liquid and placed on a table four days ago. Which liquid evaporated the fastest?



(A) W **(B)** X **(C)** Y **(D)** Z

17.

Characteristics of Four Animals

Animal	Habitat	Body Temperature	Eating Habits	Reproduction
Bullfrog	Water	Cold blooded	Carnivore	Lays eggs
Zebra	Land	Warm blooded	Herbivore	Live young
Deer	Land	Warm blooded	Herbivore	Live young
Dolphin	Water	Warm blooded	Carnivore	Live young

Which animal listed above is most different from the other animals?

(A) Bullfrog **(B)** Zebra **(C)** Deer **(D)** Dolphin

---

18. Which of these planets is closest in size to Earth?

(A) Mercury

(B) Jupiter

(C) Saturn

(D) Neptune

Planetary Data

Planet	Diameter (kilometres)
Mercury	4,880
Earth	12,756
Jupiter	142,800
Saturn	120,660
Neptune	49,528

---

19. The Sphinx, shown in the given picture is a large stone figure in the desert of Egypt which has been damaged. What most likely damaged the Sphinx?

(A) Rain

(B) Snow

(C) Waves

(D) Wind



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20. Savita is watching a movie on television. Which of the following senses is she using?

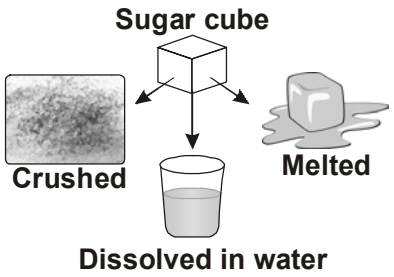
(A) Smell and hearing **(B)** Touch and smell **(C)** Touch and sight **(D)** Sight and hearing.

21. How could a student best show that air takes space?

(A) By moving hand through the air.
(B) By collecting air in a glass bottle.
(C) By pointing to big puffy clouds.
(D) By blowing up a balloon.

22. The given diagram shows three different ways that a sugar cube can undergo a physical change. Which characteristic of the sugar cube does not change?

(A) Shape
(B) State
(C) Weight
(D) Texture



23. A type of organism is green and gets energy from the Sun. Which of the following is most similar to this organism?

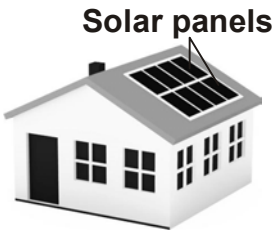
(A) Mould **(B)** Frog **(C)** Grass **(D)** Mushroom

24. Ginger is a ____.

(A) Stem **(B)** Root **(C)** Seed **(D)** Flower

25. A solar panel is used to collect energy from the Sun and change it into other forms of energy. The given diagram shows some solar panels on the roof of a house. Which form of energy is collected by the solar panels?

(A) Wind
(B) Sound
(C) Magnetic
(D) Light



26. The given agricultural tool is used for _____.

(A) Digging the soil
(B) Digging out the weeds from the soil
(C) Sowing the seeds
(D) All of these



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27. Which of these pictures of animal skin is of the animal that lives on trees and eats grains ?

(A)  **(B)**  **(C)**  **(D)** 

28. Little rainfall may cause _____.

(A) Reduced or no harvest **(B)** Scarcity of groundwater
(C) Reduced water level of ponds and wells **(D)** All of these

29. Which of these Railways of India is listed as World Heritage Site by UNESCO ?

(A) Darjeeling Himalayan Railway **(B)** Nilgiri Mountain Railway
(C) Kalka-Shimla Railway **(D)** All of these

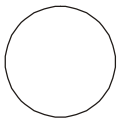
30. Select the correct properties of rubber from the following ones :

1. Waterproof **2. Flexible** **3. Strong**
4. Good conductor of electricity **5. Shiny**
6. Good conductor of heat

(A) 2, 3, 6 **(B)** 1, 2, 3 **(C)** 1, 4, 5 **(D)** 1, 2, 4, 6

31. Beena observed the Moon on 15th December and drew its sketch as shown. What will be the shape of the moon on 13th January ?


December 15

(A)  **(B)**  **(C)**  **(D)** 

32. **I have a crown, I am not a king.**
I have a neck, I am not an animal.
I have a root, I am not a plant.

What am I ?

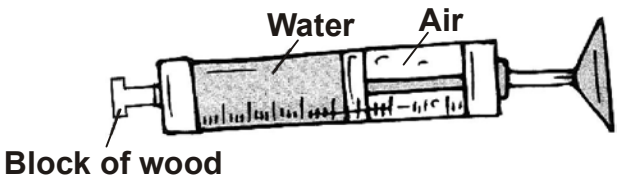
(A) Nail **(B)** Tooth **(C)** Stomach **(D)** Brain

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33. Ritu is doing an experiment with a plunger filled with water. She finds it difficult to push the plunger when its opening is blocked with a wood. What does Ritu's experiment prove ?

(A) Water cannot be compressed.
(B) Water has no definite shape.
(C) Water has no definite volume.
(D) Water cannot occupy space.

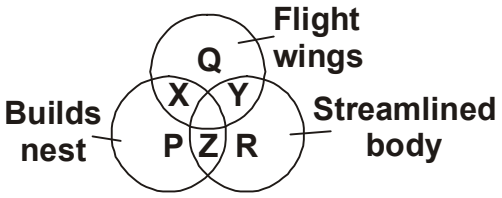


34. Kavita puts some sand into a beaker filled with water and stirs it. She has to separate water from the mixture of sand and water. What should she do?

(A) Evaporation followed by sedimentation
(B) Filteration followed by evaporation
(C) Sedimentation followed by decantation
(D) Decantation followed by filteration

35. Refer the given Venn diagram. Which letter represents penguin ?

(A) R
(B) P
(C) Z
(D) Y



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SCIENCE OLYMPIAD FOUNDATION

15th NSO

LEVEL - 2

Year 2012-13

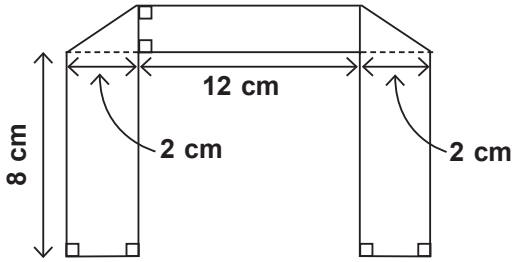
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MENTAL ABILITY

1. A number is between 47 and 63. It is also a multiple of 8. When divided by 9, the remainder is 2. The number is _____.

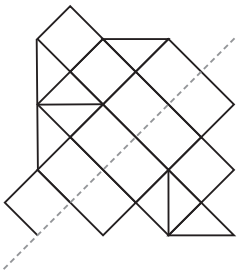
(A) 56 **(B)** 54 **(C)** 48 **(D)** 64

2. A rectangular piece of paper is folded as shown. Find the perimeter of the paper before it is folded.



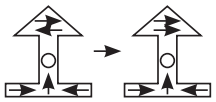
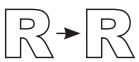
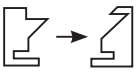
(A) 48 cm
(B) 56 cm
(C) 68 cm
(D) 60 cm

3. How many more squares and triangles respectively in the given figure are needed to make it symmetric along the dotted line?



(A) 1 and 1
(B) 2 and 1
(C) 1 and 2
(D) 2 and 2

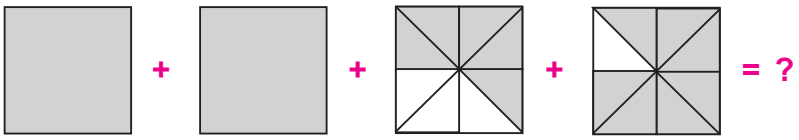
4. Select the correct pair of images with their mirror images, if mirror is placed vertically to the right of first image.

(A)  **(B)**  **(C)**  **(D)** 

5. Fifth multiple of difference between roman numerals MDLXIX and MCDXXXII is _____.

(A) DCLXXV **(B)** DCLXXXV **(C)** CXXVII **(D)** CXXXVII

6. Find the sum of the shaded parts below and express the answer as a mixed fraction.



(A) $2\frac{5}{8}$ **(B)** $2\frac{7}{8}$ **(C)** $2\frac{1}{2}$ **(D)** $3\frac{1}{2}$

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7. If ☆ + △ = 2309, 3 ☼ = 4977, and ☼ + △ = 2309 then the value of ☆ is _____.

(A) 1225 **(B)** 1255 **(C)** 1525 **(D)** 1659

8. Find the sum of values at X and Y.



(A) $9\frac{5}{6}$ **(B)** $9\frac{6}{7}$ **(C)** $9\frac{1}{5}$ **(D)** $10\frac{1}{5}$

9. Garima is South-east of Latika and South of Prerna. Latika is standing in which of the following correct boxes in the grid?

(A) R

(B) Q

(C) P

(D) S

Q				
Prerna		R		
P			S	
				Garima

10. Study the given diagram carefully. The number represented by (?) is _____.

(A) 24
(B) 16
(C) 64
(D) 196

625	10	36	9	?	8
	5		2		2
	2		3		4

SCIENCE

11. The number of 'molars' in each jaw is _____.

(A) Twelve **(B)** Six **(C)** Eight **(D)** Four

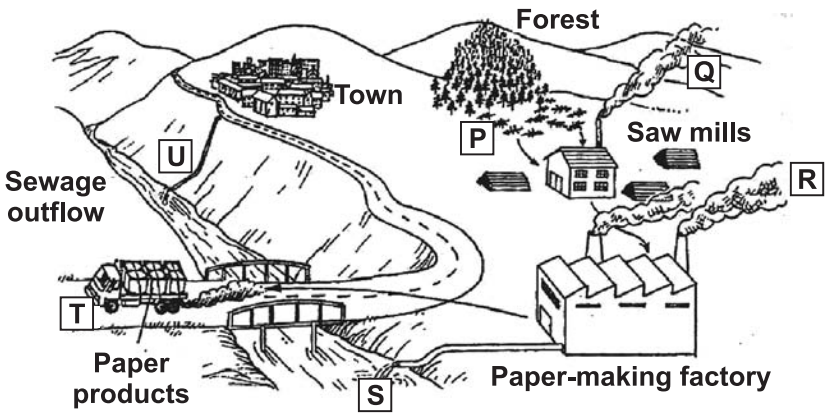
12. Which is the best representation of an insect?

(A)  **(B)**  **(C)**  **(D)** 

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13. Study the diagram carefully. Activities occurring at which place could cause acid rain?



(A) U, P and Q

(B) Q and R

(C) S and U

(D) T and U

14. Which of the following beaks is correctly matched to its function?

	Beak	Function
(A)		Picking seeds
(B)		Underwater fishing
(C)		Sucking nectar
(D)		Tearing meat

15. Which of the following adaptations peculiar to the polar bear are structural adaptations?

P : Hibernating during cold

Q : Having a thick coat of fur

R : Having stiff hairs on the underside of its feet

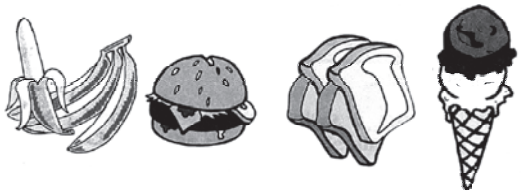
S : Having a layer of fat under the skin

(A) P and Q **(B)** Q and R **(C)** P, Q and R **(D)** Q, R and S

SPACE FOR ROUGH WORK

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16. The given foods are rich in _____.

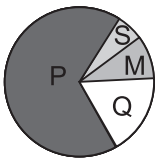


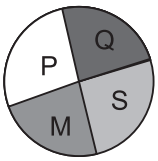
(A) Proteins
(B) Fats
(C) Carbohydrates
(D) Roughage

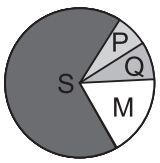
17. Which of these activities will help conserving soil and check soil erosion?

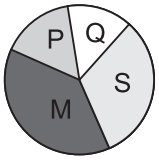
(A) Constructing dams
(B) Stopping overgrazing
(C) Terrace farming
(D) All of these

18. In a field community, a food chain is represented as : P → Q → M → S
Which one of the pie charts correctly shows the ideal proportion of the organisms in the community based on the food chain?

(A) 

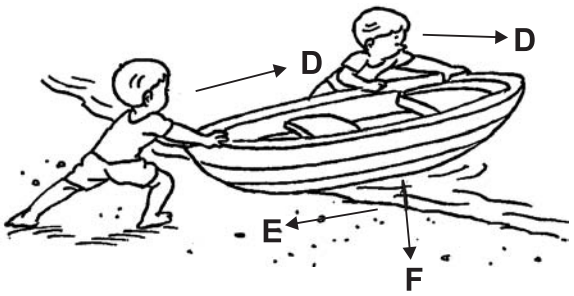
(B) 

(C) 

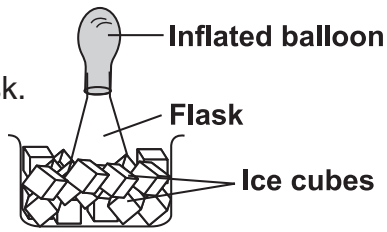
(D) 

19. The given picture shows two boys trying to move a boat from the beach into the water. Identify the forces as represented with labelled arrows D, E and F?

	D	E	F
(A)	Pulling	Frictional	Gravitational
(B)	Pushing	Frictional	Gravitational
(C)	Pushing	Pulling	Frictional
(D)	Pulling	Pushing	Frictional



20. What is the expected result of the experiment shown in the diagram?



(A) The balloon will further inflate and fly off the mouth of the flask.
(B) The conical flask will crack.
(C) The balloon will be sucked into the conical flask.
(D) Nothing will happen.

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21. Study the table given below carefully. Which rows have statements that are INCORRECT?

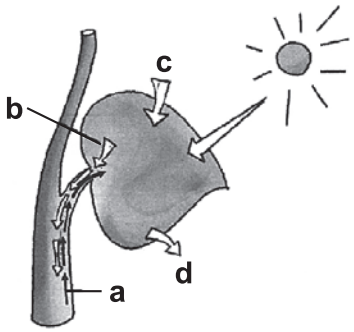
	Statements	Frog	Housefly
P	Lays eggs in water	Yes	Yes
Q	Undergoes metamorphosis	No	Yes
R	Has four stages in its life cycle	Yes	No
S	Young resemble its parent	No	No

(A) P, Q and R **(B)** Q and S **(C)** P and R **(D)** P, Q and S

22. Which of these plants is adapted to grow in hilly areas and mountains?

(A)  **(B)**  **(C)**  **(D)** 

23. The given diagram shows photosynthesis taking place in a leaf of a plant. Which of the following is the correct labelling for the arrows a to d?



	a	b	c	d
(A)	Water	Sugar	Oxygen	Carbon dioxide
(B)	Sugar	Water	Oxygen	Carbon dioxide
(C)	Sugar	Water	Carbon dioxide	Oxygen
(D)	Water	Sugar	Carbon dioxide	Oxygen

24. Match Column-I with Column-II and select the correct option from the codes given below.

(A) p - (iv); q - (iii); r-(i); s - (v); t - (ii)
(B) p - (iii); q - (i); r - (iv); s - (v); t - (ii)
(C) p - (iii); q - (iv); r - (i); s - (v); t - (ii)
(D) p - (v); q - (ii); r - (i); s - (iv); t - (iii)

Column-I		Column-II	
(p)	Sand	(i)	Tiny stones
(q)	Gravel	(ii)	Soil erosion
(r)	Clay	(iii)	Fine powder
(s)	Humus	(iv)	Heavy and sticky when wet
(t)	Topsoil	(v)	Makes the soil fertile

SPACE FOR ROUGH WORK

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25. Which of these leaves is likely to lose the least water?

(A)  **(B)**  **(C)**  **(D)** 

26. Which of the following represents inclined plane?

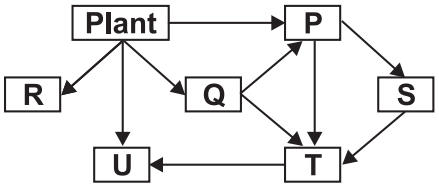
(A)  **(B)**  **(C)**  **(D)** 

27. Select the INCORRECT match between a victim's condition and first aid step taken.

(A) Fainted – Keep victim's head lower than the body
(B) Insect bitten – Loosen the victim's clothing
(C) Cuts and wound – Cover it with sterilized gauze
(D) Burnt – Put antiseptic cream

28. In the given food web P, Q, R, S, T and U are consumers. Which of the consumers are both plant and animal-eaters?

(A) P and S
(B) Q and U
(C) R and T
(D) P and U



29. Some animals go to sleep for a long time in the summer months. This phenomenon is called _____.

(A) Metamorphosis **(B)** Moulting **(C)** Aestivation **(D)** Hibernation

30. Select the odd one out.

(A) Venus flytrap plant **(B)** Pitcher plant **(C)** Bamboo plant **(D)** Sundew plant

31. Unscramble the words to find the organism that undergo moulting.

(A) YHMNP **(B)** GAMGOT **(C)** AVALR **(D)** All of these

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32. There is winter in India when it is summer in Australia. It is because _____.

(A) As the Earth spin around its axis, Sun rays fall directly on either Northern or Southern hemisphere.

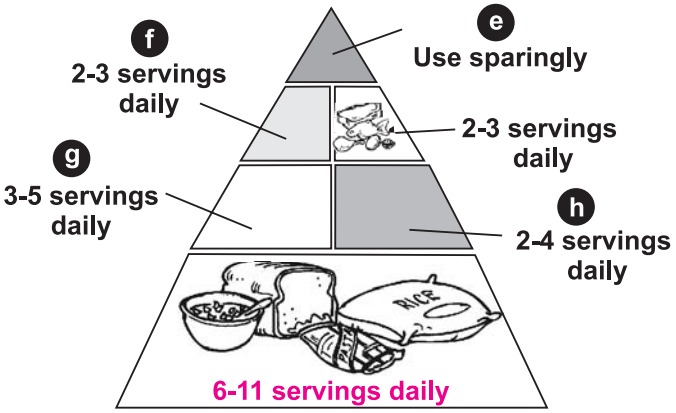
(B) As the Earth revolves around the Sun, Sun rays fall directly on the equator on either Northern or Southern hemisphere.

(C) As the Earth is tilted on its axis and revolves around the Sun, Sun rays fall directly on either Northern or Southern hemisphere.

(D) All of these

---

33. Garima prepared a food guide pyramid. The shape of pyramid indicates that a person needs to eat more food at the bottom of the pyramid than at the top. Identify the food items for places labelled as e, f, g and h.



	e	f	g	h
(A)	Fats, oils, sweets	Milk, yogurt, cheese	Vegetables	Fruits
(B)	Fruits	Milk, yogurt, cheese	Vegetables	Fats, oils, sweets
(C)	Fruits	Vegetables	Fruits	Eggs, nuts, beans
(D)	Milk, yogurt, cheese	Fats, oils, sweets	Vegetables	Fruits

---

34. Spoonful of sugar will dissolve faster when added to a beaker of _____.

(A) Water

(B) Water and stirred

(C) Chilled water and stirred

(D) Warm water and stirred

---

35. The type of tree shown in the given figure is usually found in _____.



(A) Desert areas

(B) Fresh water areas

(C) Marshy areas

(D) Hilly areas

SPACE FOR ROUGH WORK

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SCIENCE OLYMPIAD FOUNDATION

16th NSO

LEVEL - 2

Year 2013-14

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1. In a parking, there were 18 bicycles and 115 cars. After an hour, 2/5 of the cars left in the parking. How many vehicles were left in the parking?

   A. 64 B. 69 C. 87 D. 97

2. Find a number which is a multiple of 7 between 50 and 100, which can be divided by 6 and leaves no remainder. The sum of the digits of the number is 12.

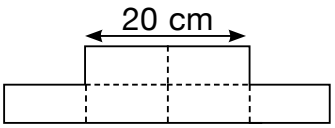
   A. 91 B. 84 C. 77 D. 63

3. Mohit turns clockwise 270° and faces north-east in the end. Which direction was Mohit facing at first?

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

4. The given figure is made up of 6 identical rectangles. If its perimeter is 108 cm, find the breadth of each rectangle.

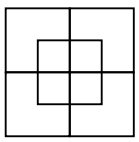
   A. 28 cm
   B. 14 cm
   C. 7 cm
   D. 10 cm

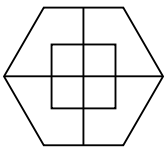


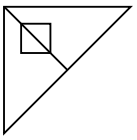
5. Select a figure from the options in which Fig. (X) is exactly embedded as one of its part.

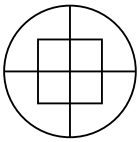


Fig. (X)

A. 

B. 

C. 

D. 

6. Which of the following sets of numbers are the factors of 56?

   A. 2, 4, 6, 14, 28 B. 2, 4, 8, 14, 28 C. 3, 4, 7, 8, 14 D. 4, 7, 12, 28, 56

7. 628 is _____ more than the quotient of 1467 and 3.

   A. 139 B. 146 C. 151 D. 167

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8. How many letters have exactly one line of symmetry?

A. 5
B. 2
C. 3
D. 4

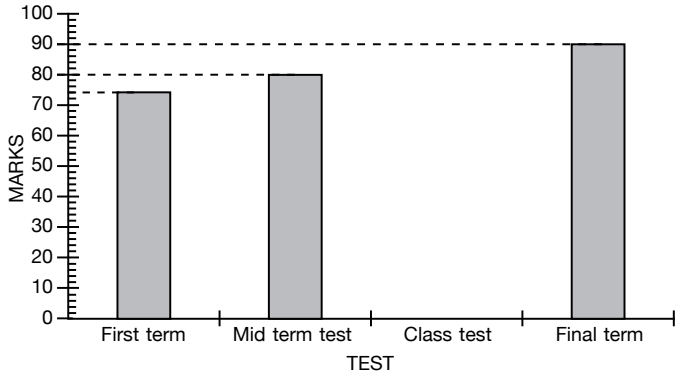
V I J K P B Z L

9. During a one-day camp, the children were actively participating in all the activities and rested during the 2 half-hour breaks and an hour lunch break. The camp started at 08 : 30 and ended at 15 : 45. How long were the children actively participating in the camp activities?

A. 3 hrs 20 mins B. 5 hrs 15 mins C. 6 hrs 20 mins D. 8 hrs 27 mins

10. The graph shows Gaurav's marks for Mathematics. If Gaurav's total score was 336, how many more marks did he score in class test than in first term?

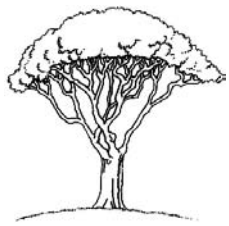
A. 14
B. 2
C. 6
D. 18



SCIENCE

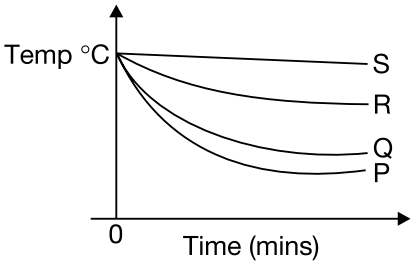
11. The branches of some trees grow over a wide area to _____ .

A. lose as much water as possible
B. get as much sunlight as possible
C. get as much rainwater as possible
D. provide a home to as many insects and birds as possible



12. Arpit carried out an experiment to find out which kind of container is best for keeping the food hot. He put the same amount of food into 4 containers made of different materials which were of the same size and thickness and placed them in the same external condition. The result of his experiment was recorded on the graph as shown.

Based on results, which container, P, Q, R or S, is the best for keeping the food hot?



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

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13. What could be the possible consequence if Water Hyacinth grows too quickly in a pond?

A. Plants like Lotus and Lily would grow rapidly and will eventually increase in number.
B. Plants like Hydrilla and Tape Grass would not grow and will eventually die.
C. Plants like Wolffia and Pistia would show reduced growth as Water Hyacinth will occupy a large surface area of pond.
D. Both B and C

14. A boy is running down the stairs at a constant speed. Which of the following is true regarding the amount of potential energy and kinetic energy?

A. Kinetic energy increases and potential energy decreases.
B. Potential energy increases and kinetic energy decreases.
C. Potential energy decreases and kinetic energy remains unchanged.
D. Kinetic energy decreases and potential energy remains unchanged.

15. What is common among the given planets?

Jupiter, Saturn, Uranus and Neptune

1. They are made up of frozen gases.
2. They are made up of rocks and iron.
3. They are neither hot nor cold.
4. They all have Moons.

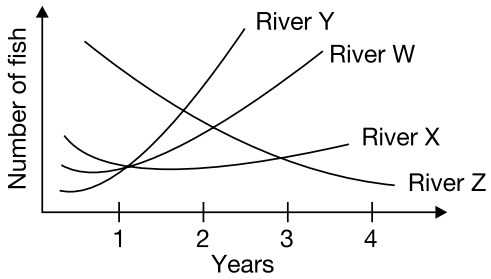
A. 1 and 4 B. 2 and 3 C. 2, 3 and 4 D. 1, 3 and 4

16. Which of these events are associated with the land breeze?

1. Wind blows from areas of high pressure to areas of low pressure.
2. Cool air blows from the sea to the land.
3. Land cools faster than the sea.
4. Warm air rises over the land.

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

17. Study the given graph. Which river is most likely to be situated near an industrial area?



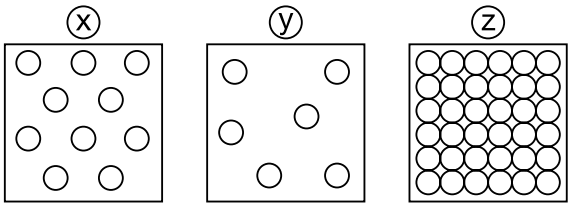
A. River W
B. River X
C. River Y
D. River Z

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18. Refer the given diagram showing three states of matter and select the correct option to answer the questions that follow:
    (a) Which of the states of matter has definite volume but not shape?
    (b) Which of the states of matter is the most compressible?

	a	b
A.	z	x
B.	x	z
C.	x	y
D.	z	y

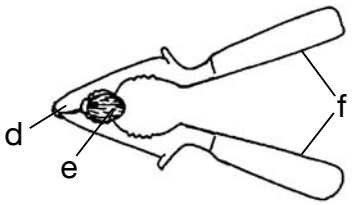


19. Which of these is the correct classification of biodegradable and non-biodegradable objects?

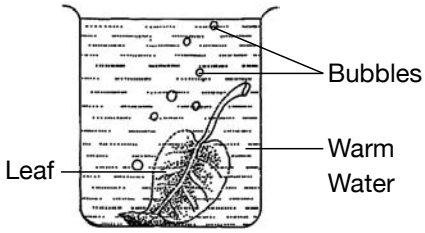
	Biodegradable	Non-biodegradable
A.	Table cloth	Paper
B.	Styrofoam cup	Wooden log
C.	Potato skin	Glass bottle
D.	Glass bottle	Potato skin

20. The given diagram shows a nutcracker.
    Which one of the following tabulates the load, effort and fulcrum correctly?

	d	e	f
A.	Effort	Load	Fulcrum
B.	Fulcrum	Load	Effort
C.	Load	Effort	Fulcrum
D.	Fulcrum	Effort	Load



21. Rajeev put a leaf he had just plucked, into a beaker of warm water as shown. He noticed bubbles coming out of the leaf. He noticed more bubbles on the lower surface of leaf. Which of the following is the correct explanation for this?



    A. Photosynthesis can take place on the lower surface of the leaf.
    B. There are more stomata on the lower surface of the leaf.
    C. The leaf is transporting sugar to the lower surface of the leaf.
    D. Carbon dioxide enters the leaf from the upper surface and oxygen comes out from the lower surface.

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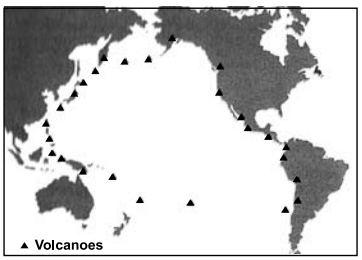
22. Which of these is INCORRECT about roughage?

A. It helps in making blood.
B. It helps in repairing the damaged parts of the body.
C. It helps the body to get rid of undigested food.
D. Both A and B

23. The process by which some birds keep their eggs warm by sitting on them is known as _____.

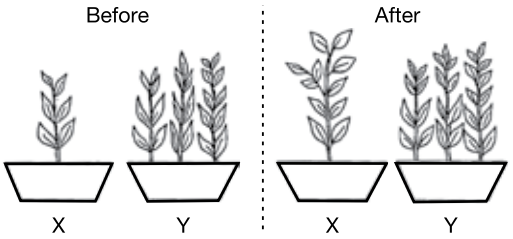
A. Hatching B. Moulting C. Incubation D. Metamorphosis

24. The given map shows some of the world's volcanoes. What conclusion can be drawn from the map?



A. Volcanoes occur on only one continent.
B. Volcanoes are affected by climate.
C. Volcanoes are concentrated in certain areas.
D. Volcanic belt occurs across a huge land mass on Earth

25. Silvy left two pots, X and Y, having green plants near her window for a week.
Based on the given diagrams of plants, which of the following statements could be true?



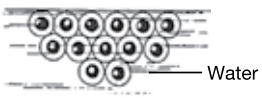
1. The plant in X grows faster than the plants in Y.
2. The plants in Y compete for nutrients and space.
3. The plant in X makes food but the plants in Y do not.

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

26. Select the INCORRECT statement regarding air.

A. Air is a mixture of many gases- nitrogen (78%), oxygen (21%) and others including carbon dioxide (1%).
B. Near the ground there is more air, hence air pressure is the least.
C. The oxygen in the air is required for burning things.
D. When a balloon is overfilled with air, the air pressure inside becomes greater than the air pressure outside and it bursts.

27. The given diagram shows eggs of an animal 'X'. Identify animal 'X' among the following.



A. 
B. 
C. 
D. 

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28. Some food items were tested with iodine. All were tested negative except _____ .

A. Potato B. Eggs C. Chicken D. Prawn

29. The given houses can be grouped into _____.



A. Portable and temporary houses
B. Moveable and portable houses
C. Temporary and permanent houses
D. Permanent and skyscraper houses

30. The movements of the hot and cold air set up a convection current. This explains why _____.

A. An air conditioner is always placed near the top of the wall.
B. A heater is always placed as low as possible in room
C. The back of a refrigerator is often painted black.
D. Both A and B.

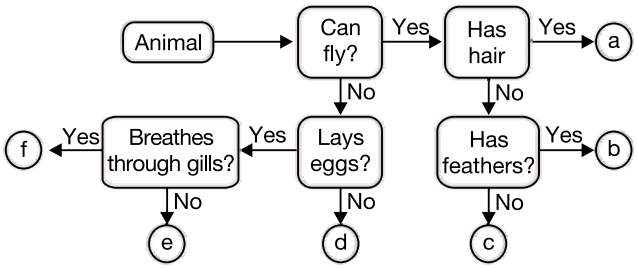
ACHIEVERS SECTION

31. Read the following sentences with blanks in them. Select the option which correctly fills up the blanks in any two sentences.

(a) _____ provide door to door service.
(b) _____ carries country's largest amount of bulky goods like coal, cement, food grains, fertilizers, petroleum, automobiles, etc. from mines to industries and from industries to the areas of consumption.
(c) _____ is a better mode of transportation in reference to cross-continental transfers.
(d) _____ is very useful at the time of natural or any other calamities for saving people or supplying goods.
(e) Indian _____ service has the largest network in the world.

A. c - Railways, e - Postal
B. c - Water transport, d - Air transport
C. b - Inland waterways, e - Telephonic
D. b - Air transport, a - Roads

32. Study the given flow chart and select the correct match of any three letters with respective animals.

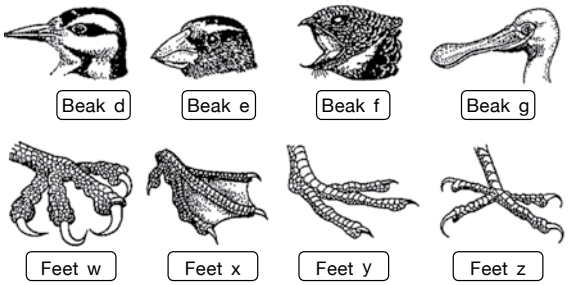


A. a - Bat, e - Ostrich, f - Goldfish
B. d - Pigeon, c - Cockroach, e - Human
C. b - Bat, e - Ostrich, f - Cockroach
D. a - Pigeon, b - Human, d - Goldfish

Space for Rough Work

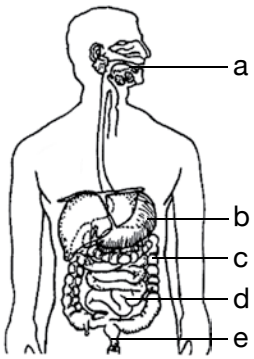
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33. Vaishali saw a bird hunting for insects by drilling its beak into trees. Which type of beak and feet would the bird have?



A. e and y
B. d and z
C. g and w
D. f and x

34. Refer the given figure showing digestive system and select the option to answer the questions that follow:



1. Where does the digestion of food begin and end respectively?
2. In which labelled parts, the acid and the enzymes break the food?

	1	2
A.	b, e	c
B.	a, d	b
C.	c, d	e
D.	a, d	c

35.

- Harish said "I can smell paneer tikka. Wow! It is really delicious!' He had used his sense of 'd' and 'e' before making the statement.
- A blind person use his sense of 'f' whenever he reads.
- Namita said "The cover of this story book is smooth and colourful". She used her sense of 'g' and 'h'.

Select the correct option regarding the senses being used in above given passage.

A. Sense of 'd' and 'e' are used to taste and feel a hot cup of coffee.
B. Either of the senses 'g' or 'h' has the same function as sense 'f'.
C. Sense 'g' and 'h' are used to distinguish between pleasant and loud sound.
D. All of these.

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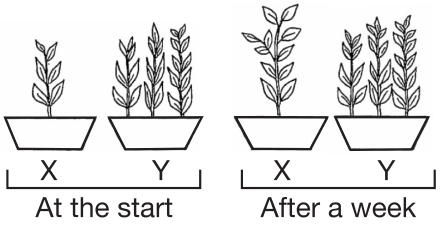
18th NSO

LEVEL - 2

Year 2015-16

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1. Swati left two similar pots, X and Y, having green plants near her window for a week which she used to water regularly. Based on the given diagrams, which of the following statements could be true?

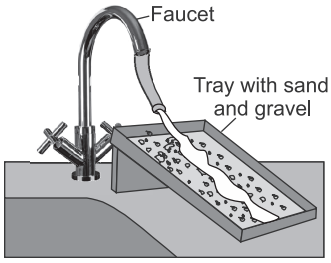


1. The plant in X grows faster than the plants in Y.
2. The plants in Y compete for nutrients and space.
3. The plant in X gets insufficient sunlight and air.

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

---

2. Two students designed the experiment shown here to study soil erosion.
A steady stream of water flows from the faucet into the tray holding sand and gravel. The water forms a channel by eroding some of the sand and gravel.
How can the students increase the amount of sand and gravel being eroded?



A. By increasing the water temperature B. By adding coarse gravel to the tray
C. By increasing the tilt of the tray D. By reducing the amount of flowing water

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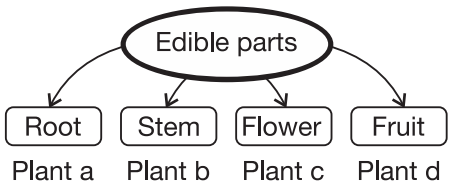
3. Select the action which involves a force different from the other three.

A. Stretching a spring B. Kicking a football
C. Pressing a button on keyboard D. Shoving a friend

---

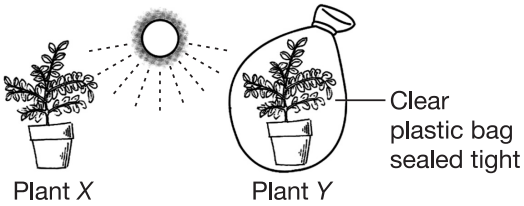
4. Different plants have different edible parts as shown in the classification chart. Which one of the following can be a, b, c and d ?

	a	b	c	d
A.	Onion	Ginger	Cabbage	Carrot
B.	Carrot	Turmeric	Broccoli	Coconut
C.	Turnip	Radish	Cauliflower	Potato
D.	Radish	Onion	Cabbage	Ginger



---

5. Two similar pots with similar plants were set up as shown in the figure. Both pots were left in the garden and watered daily with the same amount of water. What will happen to the plants X and Y after a month?



A. Both plants X and Y will flower, but plant X will have more flowers than plant Y.
B. Plant *X* will grow taller than plant Y because plant Y will not get sunlight.
C. Plant Y will become bushy and its stem will become woody while plant X will remain as it is.
D. Plant Y will wither due to lack of air while plant X will grow normally.

SPACE FOR ROUGH WORK

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6. Which of these leaves is most likely to be from a desert plant?

A.  B.  C.  D. 

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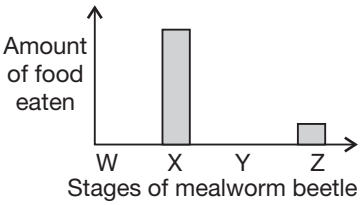
7. Read the given statement and select the option that correctly fills the blanks (i), (ii), (iii) and (iv).

The set of temporary teeth has total __(i)__ teeth in which __(ii)__ teeth are absent while the set of permanent teeth has __(iii)__ teeth in each jaw and includes __(iv)__ molars in each jaw.

A. (i) - 20, (ii) - premolar, (iii) - 16, (iv) - 6
B. (i) - 20, (ii) - premolar, (iii) - 32, (iv) - 12
C. (i) - 32, (ii) - molar, (iii) - 20, (iv) - 6
D. (i) - 32, (ii) - molar, (iii) - 16, (iv) - 12

---

8. The given graph shows the amount of food eaten by a mealworm beetle at different stages in its life. The stages are not in an order but it is known that stage X comes after stage Y. Select the correct arrangement of different stages of the beetle.



A. $Y \rightarrow W \rightarrow X \rightarrow Z$ B. $Y \rightarrow Z \rightarrow W \rightarrow X$ C. $Y \rightarrow X \rightarrow W \rightarrow Z$ D. $W \rightarrow Y \rightarrow Z \rightarrow X$

---

9. Which one of the following appliances changes electrical energy into both light and sound energy?

A. Iron B. Room-heater C. Television set D. Tube light

---

10. Select the option that correctly compares clothes made from natural and synthetic fibres.

	Clothes made of natural fibres	**Clothes made of synthetic fibres**
A.	Quick drying	Slow drying
B.	Non-porous	Porous
C.	Biodegradable	Non-biodegradable
D.	Non-waterproof	Waterproof

---

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

	Column I		**Column II**
(a)	Cockroach	(1)	Maggot
(b)	Butterfly	(2)	Caterpillar
(c)	Housefly	(3)	Tadpole
(d)	Frog	(4)	Nymph

A. (a)-(1), (b)-(2), (c)-(3), (d)-(4)
B. (a)-(3), (b)-(2), (c)-(4), (d)-(1)
C. (a)-(1), (b)-(2), (c)-(4), (d)-(3)
D. (a)-(4), (b)-(2), (c)-(1), (d)-(3)

SPACE FOR ROUGH WORK

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12. Name of some fibres can be obtained by using the letters given in the following box.

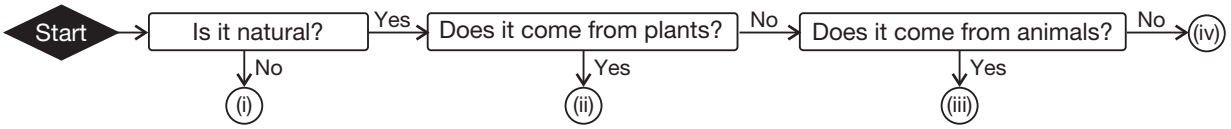
I	O	L	C	S	T	K	O	T	N	O	L

Which of the following objects CANNOT be made using only these fibres?

A. Rugs B. Curtains C. Raincoats D. Both A and C

---

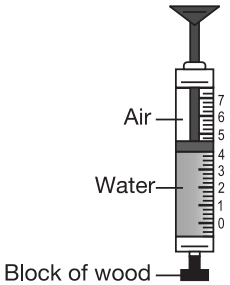
13. Study the given flow chart carefully. Cotton and metal are represented by the numbers _____ and _____ respectively.



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

---

14. Shruti took a syringe filled with water as shown here. She applied large pushing force on the piston. What can be the level of water in the syringe now?

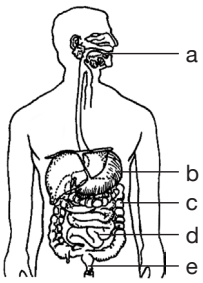


A. 0 mL
B. 2 mL
C. 4 mL
D. 6 mL

---

15. Refer to the given figure showing digestive system.

Where does the digestion of food begin and end respectively?



A. b, e
B. c, d
C. a, d
D. a, e

---

16. A croton plant has colourful leaves. Which one of the following statements is true regarding the croton plant?

A. It can make food because it has yellow pigments in its leaves.
B. It can make food because its mature stems can perform photosynthesis.
C. It can make food because its leaves contain chlorophyll.
D. It is a parasitic plant and cannot make food, hence it obtains food from other green plants.

---

17. What is common between the fifth and eighth planet of our solar system?

1. They are made up of frozen gases. 2. They are made up of rocks and iron.
3. They are neither hot nor cold.
4. They are called interior planets or inner planets.

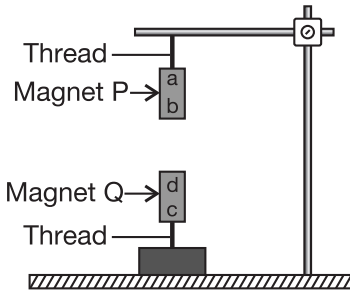
A. 1 only B. 2 and 3 only C. 2, 3 and 4 only D. 1, 3 and 4 only

---

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18. Akshat arranged two magnets in a set up and the outcome is shown in the given figure. Select the option that correctly identifies the poles a, b, c and d of the magnets.



	a	b	c	d
A.	North	South	North	South
B.	South	North	North	South
C.	North	North	South	South
D.	South	North	South	North

19. Which of these events are associated with the land breeze?

A. Wind blows from areas of high pressure to areas of low pressure.
B. Cool air blows from the sea to the land.
C. Land gets heated up faster than the sea.
D. Warm air rises up over the land.

20. In modern times, _____ determine the clothing of people living at a particular place.

A. Cultural beliefs
B. Climate
C. Easily available fibres
D. Both A and B

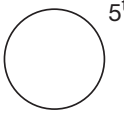
21. The method of food preservation which involves _____ is hidden in the given word grid.

A	G	S	S	J	D	Q	C	P
B	K	U	A	P	R	R	A	I
L	J	E	L	L	Y	I	N	G
M	N	G	T	P	I	T	N	C
U	Z	A	I	S	N	V	I	K
R	S	R	N	N	G	U	N	L

A. Adding excess sugar
B. Adding excess salt
C. Heating the food for a period then cooling suddenly
D. Storing food in microbe free containers

22. Megha observed the Moon on 5th December and drew its sketch as shown. What will be the shape of the Moon on 2nd January?



A. 
B. 
C. 
D. 

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

Column I	Column II
(p) Sand	(1) Tiny stones
(q) Gravel	(2) Soil erosion
(r) Clay	(3) Fine powder
(s) Humus	(4) Heavy and sticky when wet
(t) Topsoil	(5) Makes the soil fertile

A. p - (4), q - (3), r - (1), s - (5), t - (2)
B. p - (3), q - (1), r - (4), s - (5), t - (2)
C. p - (3), q - (4), r - (1), s - (5), t - (2)
D. p - (5), q - (2), r - (1), s - (4), t - (3)

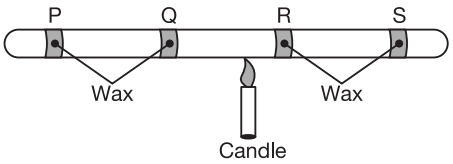
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24. The movements of the hot and cold air set up a convection current. This explains why ____.

A. An air conditioner is placed at the ceiling end of the wall.
B. A heater is placed as low as possible in room.
C. The back of a refrigerator is often painted black.
D. Both A and B

25. Study the given diagram carefully. Candle wax was coated at different parts P, Q, R and S of the metal rod. Which one of the following is the correct order in which the wax would melt?



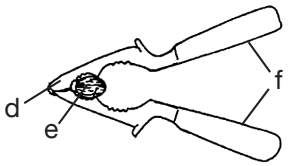
A. P, Q, R, S B. S, R, Q, P C. R, Q, P, S D. R, Q, S, P

26. In order to save our environment, we should prefer to use items with which of the following signs?

A.  B.  C.  D. 

27. The given diagram shows a nutcracker. Identify the labels d, e and f and select the option that correctly identifies the components denoted by these labels in other simple machines.

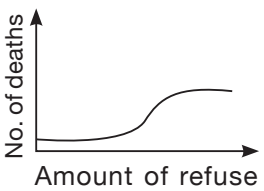
A. d - The bend that joins two arms of a tong
B. f - The screw that fixes the two parts of a scissor together
C. e - The elbow of our hand
D. f - The front clawed end of a bottle opener

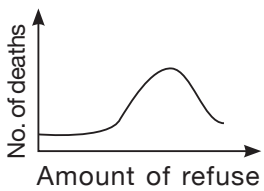


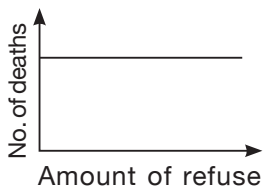
28. Harshit wanted to find out among the four locations - playground, science laboratory, school garden and the bus stop outside his school - which is the most polluted. He placed four glass tiles smeared with petroleum jelly at the four locations for the same period of time for one day and recorded his observation. However, his teacher told him that his experiment was not reliable because he did not _____.

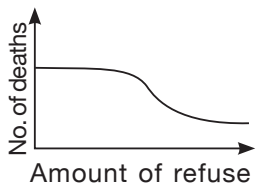
A. Wet the glass tiles
B. Use tiles made of different materials
C. Repeat the experiment over a few days
D. Examine the tiles with hand lens

29. Which of the following graphs shows the relationship between the number of deaths of organisms in a canal and the amount of refuse in it?

A. 

B. 

C. 

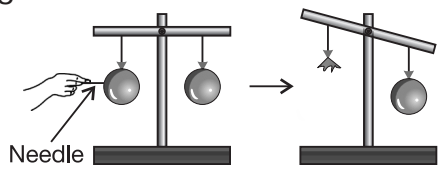
D. 

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30. Which of the following can you deduce from the given figure?

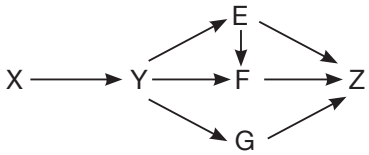
A. Air moves things.
B. Air has mass.
C. Air has no fixed volume.
D. Air occupies space.



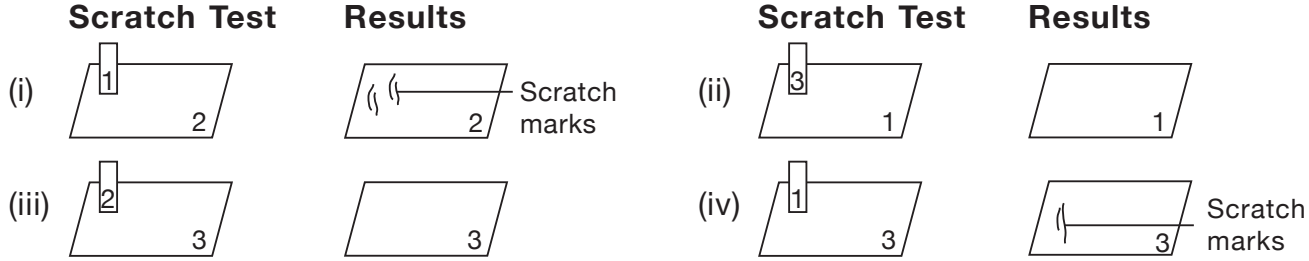
ACHIEVERS SECTION

31. Refer to the given food web. If all the F organisms are killed, which one of the following will happen?

A. E would have to find new sources of food.
B. Z would have more competitors for food.
C. E would decrease in number.
D. Z would eat more of E and G.



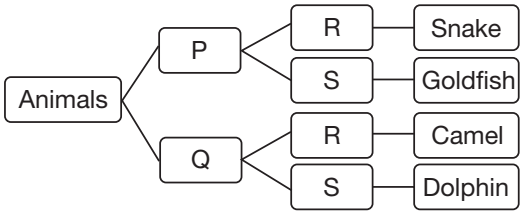
32. Rohit carried out an experiment to test the hardness of objects 1, 2 and 3. The results of the experiment are shown here.



Which of the following shows the correct order of hardness of 1, 2 and 3, starting from the hardest?

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

33. Some animals are grouped according to their similarities in the given classification chart. Which option gives the correct information for characters P, Q, R and S respectively?

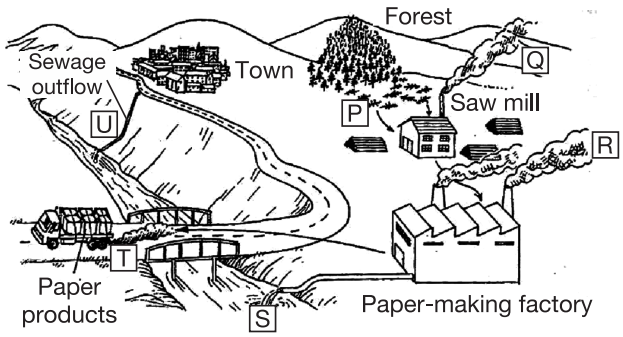


	P	Q	R	S
A.	Live in water	Live on land	Animals with hair	Animals with scales
B.	Animals with hair	Animals with scales	Live in water	Live on land
C.	Live in water	Live on land	Animals which give birth to their youngs alive	Animals which lay eggs
D.	Animals with scales	Animals with hair	Live on land	Live in water

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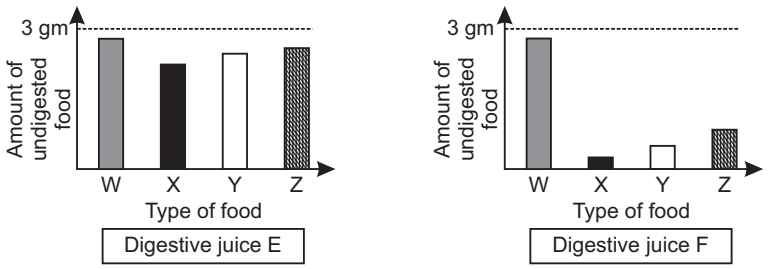
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34. Study the given diagram carefully. Activities occurring at which place could cause water pollution and acid rain respectively?



	Water pollution	Acid Rain
A.	P and Q	S and U
B.	S and U	Q, R and T
C.	Q and R	S and T
D.	S and R	P, Q and U

35. Rati placed 3 gm each of food W, X, Y and Z in digestive juices E and F for 3 hours. After 3 hours, she recorded the amount of undigested food left in each digestive juice and plotted the graphs as shown below.



Based on the information deduced from the given graphs :

(i) Which of these foods W, X, Y and Z is rich in dietary fibres?

(ii) If digestive juice E is from saliva then which component in the given foods W, X, Y and Z is being digested?

A. (i) - Z, (ii) - Starch
B. (i) - W, (ii) - Starch
C. (i) - Y, (ii) - Fats
D. (i) - W, (ii) - Fats

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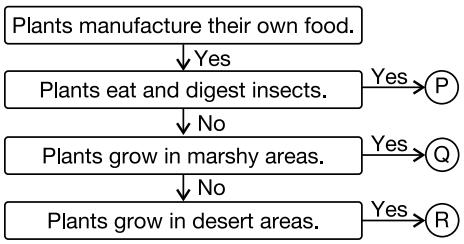
19th NSO

LEVEL - 2

Year 2016-17

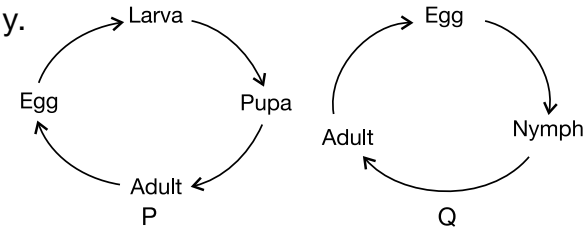
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1. Refer to the given flow chart and select the INCORRECT option regarding plants P, Q and R.



   A. P generally grows in soil that is deficient in minerals like nitrogen.
   B. Q has special roots that grow above the soil to breathe air.
   C. Leaves of R may possess sunken stomata or may be reduced to spines.
   D. None of these

2. Study the two life cycles P and Q, and select the option that correctly identifies the organisms which show these cycles, respectively.



	P	Q
A.	Mosquito	Butterfly
B.	Lizard	Frog
C.	Housefly	Cockroach
D.	Grasshopper	Dragonfly

3. Some food items are shown in the given box.



   There are _____ energy giving foods, _____ body building foods and _____ protective foods.

   A. 5, 4, 3 B. 4, 4, 4 C. 3, 4, 5 D. 5, 2, 5

4. The couples shown in the given picture belong to which states of India respectively?



   A. Kashmir and Maharashtra
   B. Sikkim and Odisha
   C. Gujarat and West Bengal
   D. Uttar Pradesh and Kerala

5. Starting from the first letter, strike out every alternate letter to get the name of a food preservation method and select the correct option.

   A. RFORSYPIQNLGD B. PCOARNCNEILNAGI
   C. CSETFEGAHMJIKNLGM D. FRGOHAISOTPIQNRGS

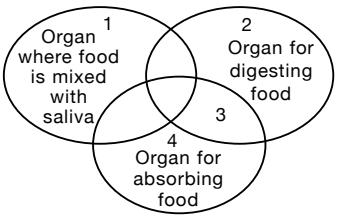
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6. During her summer vacations, Nishtha is going to a place where stilt houses and floods are very common. Which of the following should she preferably pack in her luggage?

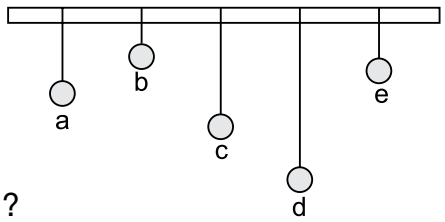
A.  B.  C.  D. 

7. Which of the labelled areas in the Venn diagram represents the small intestine?



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

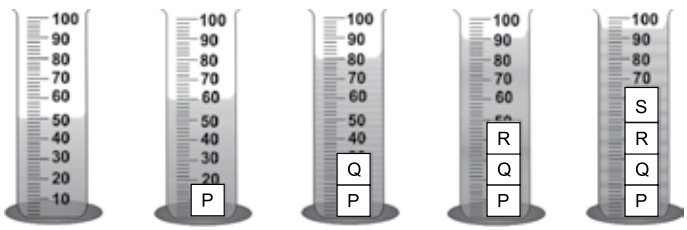
8. Ravi set up an experiment as shown in the given figure. The figure shows five identical balls being suspended on a rod by strings of different lengths. Ravi then cut all five strings at the same time and the balls were allowed to fall freely to the ground.



Which of these statements holds true for this experiment?

A. Ball 'b' had the greatest impact on the ground.
B. Ball 'a' had less gravitational potential energy than ball 'c' at the start.
C. Ball 'd' had the most gravitational potential energy at the start.
D. Balls 'a' and 'e' had different amounts of gravitational potential energy at the start due to their different positions along the rod.

9. Four objects P, Q, R and S of different volumes are placed in a measuring cylinder one by one and the subsequent rise in water level is shown in the given figures. The object with the lowest volume is _____.



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

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

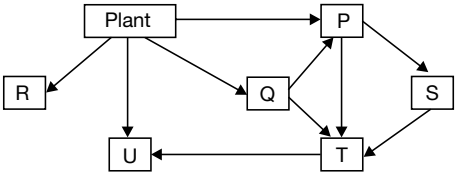
Column I	**Column II**
1. Adaptation for flight	(a) Gills
2. Adaptation for protection from enemies	(b) Sharp and well developed canines
3. Adaptation for eating flesh	(c) Thick layer of fat under skin
4. Adaptation for living in cold region	(d) Camouflage
5. Adaptation for living in water	(e) Hollow bones

A. 1-(b), 2-(c), 3-(a), 4-(d), 5-(e)
B. 1-(a), 2-(e), 3-(c), 4-(b), 5-(d)
C. 1-(e), 2-(d), 3-(b), 4-(c), 5-(a)
D. 1-(c), 2-(b), 3-(e), 4-(a), 5-(d)

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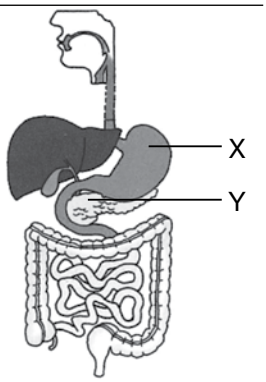
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11. In the given food web, P, Q, R, S, T and U are consumers. Which of these consumers are both plant and animal-eaters?



A. P and S
B. Q and U
C. R and T
D. P and U

12. Refer to the given diagram of human digestive system and select the correct option regarding parts, X and Y.



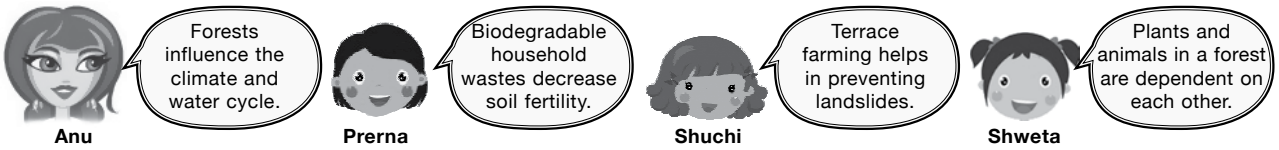
A. In part X complete digestion of all components of food takes place.
B. If part Y is removed in a person, then he/she will not be able to digest carbohydrates at all.
C. Both X and Y pour their digestive juices in small intestine for digestion of various components of food.
D. Y secretes a digestive juice which is capable of digesting fats, proteins and carbohydrates present in food.

13. Study the given table.
Which of the following can be inferred regarding the two surfaces?

Property / Surface	Rough	Shiny
X	✓	×
Y	×	✓

A. Surface X acts like a mirror.
B. Surface Y may act like a mirror.
C. Surface X reflects light better than surface Y.
D. None of these

14. Four of Mrs. Singh's pupils made statements related to environment.



Which pupil made an INCORRECT statement?
A. Shuchi and Prerna only
B. Prerna only
C. Anu and Shweta only
D. Shweta only

15. Unscramble the given letters to get the name of an adaptation which is shown by the given animal.



A. LUEBBRB
B. AOFAUCMLEG
C. ILGSL
D. ETEFRHA

16. X is the largest and fastest spinning planet whereas Y is the brighest planet of our Solar system. Identify X and Y and select the correct option regarding them.
A. X is wider than 18 Earths if kept side by side.
B. Y is called morning or evening star as it is seen at dawn or dusk.
C. X is covered with thick layer of blue green gas.
D. Rings of Y are made up of ice, rocks and dust.

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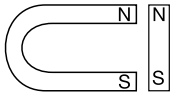
17. Select the INCORRECT match.
A. Mangrove - Breathing roots
B. Cactus - Photosynthetic stems
C. Venus flytrap - Roots trap insects
D. Tape grass - Ribbon like narrow leaves

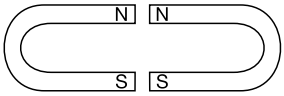
18. Study the given word chop table.
Which of the following sets of boxes will give the names of traditional clothings of Kerala and Korea, respectively?
A. 2 and 8, 4 and 5
B. 1 and 6, 5 and 3
C. 7 and 3, 4 and 9
D. 1 and 7, 2 and 5

1 MUN	2 KIM	3 BOK
4 KUR	5 HAN	6 DU
7 JACK	8 ONO	9 TA

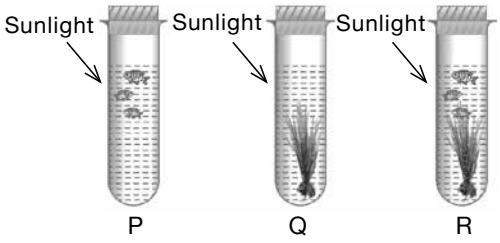
19. The given options show pair of magnets each. Which pair of magnets will attract each other?
A. 

B. 

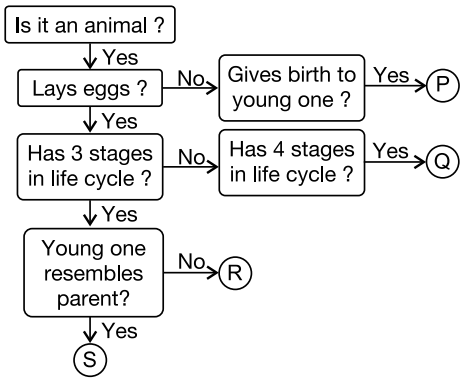
C. 

D. 

20. Rohit performed an experiment wherein he set up three test tubes as shown in the figure. Select the INCORRECT statement regarding this.
A. Test tube P will have most carbon dioxide after three hours.
B. Test tube Q will have least oxygen after three hours.
C. Organisms in test tube R will survive for a longer time as compared to organisms in test tubes P and Q.
D. No oxygen will remain in test tube P after some time.



21. Refer to the given flow chart and select the correct option regarding P, Q, R and S.
A. P could be duck-billed platypus or spiny ant eater.
B. Q exhibits one non-feeding stage in its life cycle.
C. R could be frog or hen.
D. All the stages of the life cycle of S are feeding and S could be beetle or botfly.



22. Select the INCORRECT match from the following.
A. Vitamin A-Fish oil- Keeps eyes healthy
B. Iron-Beetroot-Helps in formation of blood
C. Potassium - Lemon - Necessary for healthy gums
D. Calcium - Milk - Makes our bones and teeth strong

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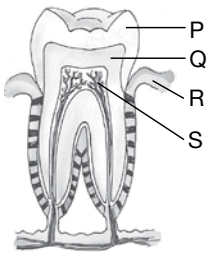
23. Study the given word grid carefully. What is the number of natural fibres and synthetic fibres, hidden in the grid?

P	Z	A	K	S	M	P
O	W	C	O	I	B	G
L	W	O	O	L	A	F
Y	Q	T	X	K	N	L
E	C	T	Y	U	T	A
S	N	O	W	R	V	X
T	E	N	Y	L	O	N
E	G	M	E	T	P	K
R	H	D	E	A	L	R

	Natural fibres	Synthetic fibres
A.	4	2
B.	2	1
C.	1	3
D.	4	3

24. Select the activity which is different from the other three based on the types of force involved.
    A. A person climbing up a mountain using rope
    B. Making chapati out of dough
    C. Lifting a heavy bag kept on floor
    D. Drawing water out of well using rope

25. Refer to the given diagram of human tooth and select the correct option regarding its parts P, Q, R and S.



    A. P is the soft, white and shiny part of tooth.
    B. Q is root whereas R is crown of tooth.
    C. S nourishes Q as it contains blood vessels and nerves.
    D. Q is a soft tissue which anchors the tooth inside gums.

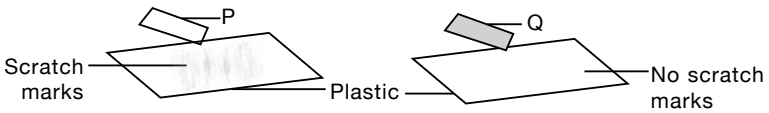
26. In which of the following cases, the person is NOT doing any work in terms of science?
    A. Rohan is throwing a ball.
    B. Sukriti is standing while carrying her school bag on her shoulders.
    C. Vidushi is trying to move a tree by pushing it.
    D. Both B and C

27. The name of which of the following CANNOT be obtained by using the letters given in the box (you can use each letter more than once).

M	S	U	T	E	W	L	H	F
V	P	N	A	R	I	Q	O	

    A. An insect which sucks our blood
    B. A wingless insect
    C. An insect from which honey is obtained
    D. A social insect that destroys wooden items

28. Dinesh wanted to test how hard are the objects made of materials P and Q, so he performed an experiment as shown. Which of the following shows the hardness of objects P, Q and plastic in the correct order?



	Hardest				Softest
A.	P	→	Q	→	Plastic
B.	P	→	Plastic	→	Q
C.	Q	→	Plastic	→	P
D.	Plastic	→	P	→	Q

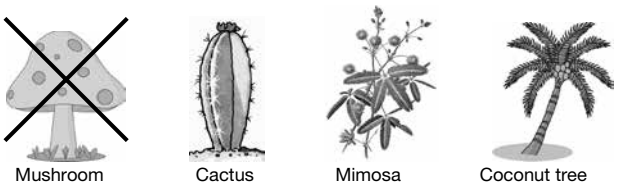
SPACE FOR ROUGH WORK

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29. If ◐ Moon was observed on 7th July then, ◑ Moon will be observed on _____.

A. 15th July B. 28th July C. 30th July D. 21st July

30. Manoj crossed out 'mushroom' from the given group because he felt that it did not belong to this group.



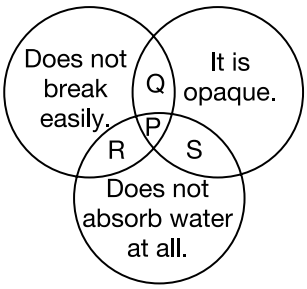
Which of the following statements support Manoj's conclusion?

(a) Mushroom is a plant while the rest are not.
(b) Mushroom is a fungus while the rest are not.
(c) Mushroom feeds on decaying things while the rest do not.
(d) Mushroom cannot make its own food while the rest can.

A. (b) and (c) only B. (a), (b) and (d) only
C. (a), (c) and (d) only D. (b), (c) and (d) only

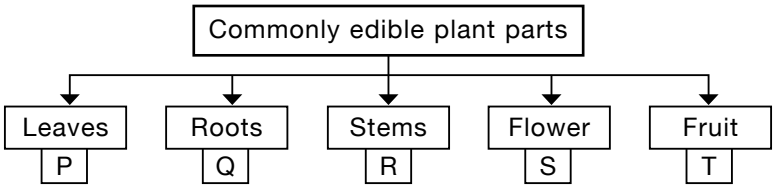
ACHIEVERS SECTION

31. Refer to the given Venn diagram and select the option that correctly identifies P, Q, R and S.



	P	Q	R	S
A.	Steel tiffin box	Wooden pen stand	Plastic jar	Aluminium foil
B.	Spectacles	Butter paper	Wooden door	Raincoat
C.	Mirror	Plastic tumbler	Glass bangle	Eraser
D.	Frosted glass	Cardboard	Rubber band	Wooden spoon

32. Refer to the given flow chart and select the correct option regarding P, Q, R, S and T.

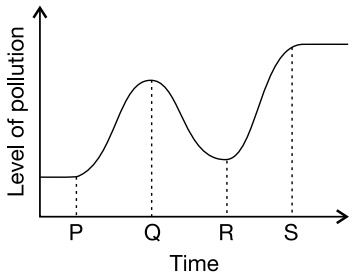


	P	Q	R	S	T
A.	Tomato	Potato	Okra	Cauliflower	Mustard
B.	Spinach	Banana	Carrot	Basil	Clove
C.	Radish	Turnip	Lotus	Broccoli	Pumpkin
D.	Coriander	Rice	Brinjal	Sugarcane	Lettuce

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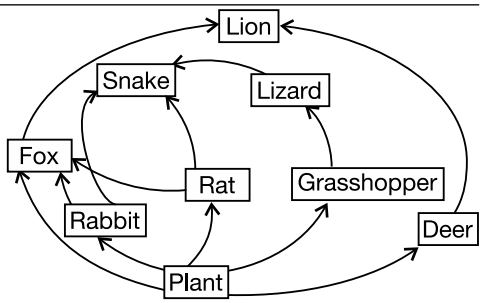
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33. The given graph shows how the level of pollution changes in an area over a time period.
Which of the following can be most likely concluded from the given graph?



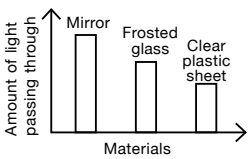
A. Trees were cut in large numbers in that area at point P.
B. A new factory was set up in the area at point Q.
C. The interval R-S shows that people started recycling waste and switched to public transport instead of using their personal transports.
D. None of these

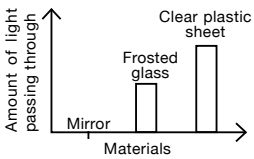
34. Refer to the given food web and select the correct option regarding it.

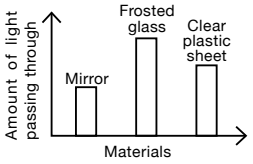


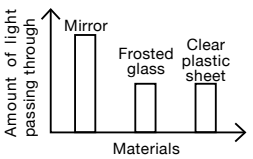
A. There are six food chains in the given food web.
B. Rabbit, rat, grasshopper and deer feed only on plants.
C. Two animals in this food web feed on both plants and animals.
D. If fox and deer are removed from the area where this food web is operating, then lion population will increase tremendously.

35. Shweta conducted an experiment to find out the amount of light that can pass through a mirror, a frosted glass and a clear plastic sheet. She shone a torch on these three materials one at a time and used light sensors to measure the amount of light that passed through each of them. Which of the following graphs correctly shows the result of her experiment?

A.


B.


C.


D.


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ANSWER KEYS

14th NSO

1. (B)	**2.** (C)	**3.** (D)	**4.** (D)	**5.** (B)	**6.** (A)	**7.** (D)	**8.** (D)	**9.** (A)	**10.** (D)
11. (B)	**12.** (C)	**13.** (B)	**14.** (C)	**15.** (C)	**16.** (C)	**17.** (A)	**18.** (A)	**19.** (D)	**20.** (D)
21. (D)	**22.** (C)	**23.** (C)	**24.** (A)	**25.** (D)	**26.** (D)	**27.** (B)	**28.** (D)	**29.** (D)	**30.** (B)
31. (C)	**32.** (B)	**33.** (A)	**34.** (C)	**35.** (C)					

15th NSO

1. (A)	**2.** (C)	**3.** (D)	**4.** (C)	**5.** (B)	**6.** (D)	**7.** (D)	**8.** (D)	**9.** (C)	**10.** (B)
11. (B)	**12.** (C)	**13.** (B)	**14.** (D)	**15.** (D)	**16.** (C)	**17.** (D)	**18.** (A)	**19.** (B)	**20.** (C)
21. (A)	**22.** (A)	**23.** (D)	**24.** (B)	**25.** (A)	**26.** (C)	**27.** (B)	**28.** (D)	**29.** (C)	**30.** (C)
31. (D)	**32.** (C)	**33.** (A)	**34.** (D)	**35.** (C)					

16th NSO

1. (A)	**2.** (B)	**3.** (B)	**4.** (C)	**5.** (C)	**6.** (B)	**7.** (A)	**8.** (B)	**9.** (B)	**10.** (D)
11. (B)	**12.** (C)	**13.** (D)	**14.** (C)	**15.** (A)	**16.** (B)	**17.** (D)	**18.** (C)	**19.** (C)	**20.** (B)
21. (B)	**22.** (D)	**23.** (C)	**24.** (D)	**25.** (A)	**26.** (B)	**27.** (C)	**28.** (A)	**29.** (C)	**30.** (D)
31. (B)	**32.** (A)	**33.** (B)	**34.** (B)	**35.** (B)					

17th NSO-Level 2 was an online exam. Hence, paper cannot be included in the booklet.

18th NSO

1.	(A)	**6.**	(A)	**11.**	(D)	**16.**	(C)	**21.**	(A)	**26.**	(A)	**31.**	(D)
2.	(C)	**7.**	(A)	**12.**	(C)	**17.**	(A)	**22.**	(C)	**27.**	(A)	**32.**	(B)
3.	(A)	**8.**	(C)	**13.**	(C)	**18.**	(B)	**23.**	(B)	**28.**	(C)	**33.**	(D)
4.	(B)	**9.**	(C)	**14.**	(C)	**19.**	(A)	**24.**	(D)	**29.**	(A)	**34.**	(B)
5.	(D)	**10.**	(D)	**15.**	(C)	**20.**	(D)	**25.**	(D)	**30.**	(B)	**35.**	(B)

19th NSO

1.	(D)	**2.**	(C)	**3.**	(A)	**4.**	(C)	**5.**	(B)	**6.**	(D)	**7.**	(C)
8.	(A)	**9.**	(D)	**10.**	(C)	**11.**	(D)	**12.**	(D)	**13.**	(B)	**14.**	(B)
15.	(B)	**16.**	(B)	**17.**	(C)	**18.**	(B)	**19.**	(B)	**20.**	(B)	**21.**	(B)
22.	(C)	**23.**	(A)	**24.**	(B)	**25.**	(C)	**26.**	(D)	**27.**	(C)	**28.**	(B)
29.	(D)	**30.**	(D)	**31.**	(A)	**32.**	(C)	**33.**	(A)	**34.**	(B)	**35.**	(B)

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