ebook

mtG

NSO

NATIONAL SCIENCE OLYMPIAD

CLASS 4

5 Years (2010-2014) Solved Papers

Including Set A and Set B of Year 2012, 2013 and 2014



Copyright © 2015 Science Olympiad Foundation. Printed with the permission of Science Olympiad Foundation. No part of this publication may be reproduced, transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the copyright holder. Ownership of an ebook does not give the possessor the ebook copyright.
All disputes subject to Delhi jurisdiction only.

Disclaimer : The information in this book is to give you the path to success but it does not guarantee 100% success as the strategy is completely dependent on its execution. And it is based on last years papers of NSO exam.

Published by : MTG Learning Media (P) Ltd.
Corporate Office : Plot 99, 2nd Floor, Sector 44 Institutional Area, Gurgaon, Haryana.
Phone : 0124 - 4951200
Web: mtg.in Email: info@mtg.in

Regd. Office : 406, Taj Apt., Ring Road, Near Safdarjung Hospital, New Delhi-110029

Visit **www.mtg.in** for buying books online.

Do you want yourself to be updated about

- **NEW arrivals at MTG Book store**
- **Special offers on MTG Books and Magazines**
- **Exams alerts, instant reply to your queries**
- **Important questions for forthcoming examinations**
- **Study tips, quizzes, flowcharts, learning strategies, news from science world, and much more…**



Like us on
Facebook

https://www.facebook.com/pcmbtoday

NSO

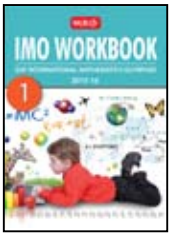
CLASS 4

Contents

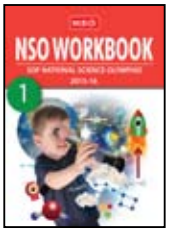
- 13th NSO 2010
- 14th NSO 2011
- 15th NSO 2012 - SET A
- 15th NSO 2012 - SET B
- 16th NSO 2013 - SET A
- 16th NSO 2013 - SET B
- 17th NSO 2014 - SET A
- 17th NSO 2014 - SET B

MTG WORK-BOOKS / OLYMPIAD BOOKS

CLASS 1



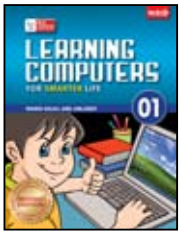
International Mathematics Olympiad



National Science Olympiad

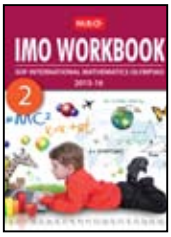


International English Olympiad

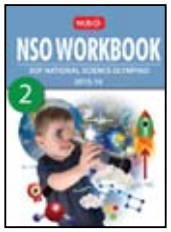


MTG CSS Series

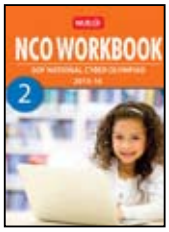
CLASS 2



International Mathematics Olympiad



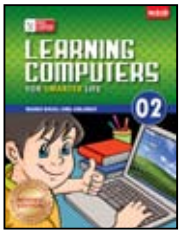
National Science Olympiad



National Cyber Olympiad

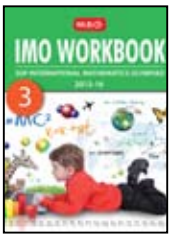


International English Olympiad

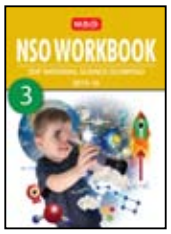


MTG CSS Series

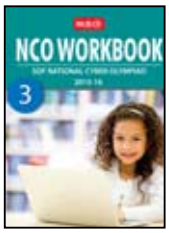
CLASS 3



International Mathematics Olympiad



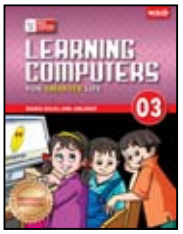
National Science Olympiad



National Cyber Olympiad



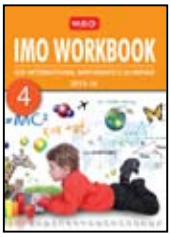
International English Olympiad



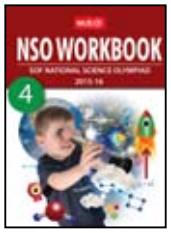
MTG CSS Series

MTG WORK-BOOKS / OLYMPIAD BOOKS

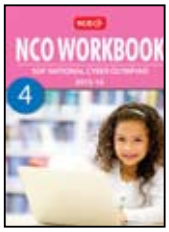
CLASS 4



International Mathematics Olympiad



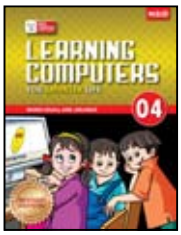
National Science Olympiad



National Cyber Olympiad

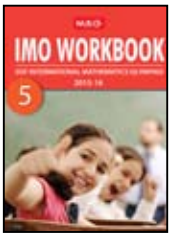


International English Olympiad

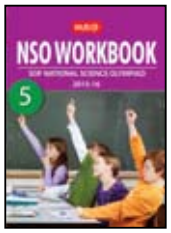


MTG CSS Series

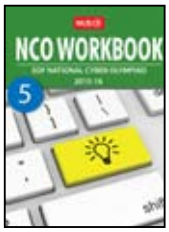
CLASS 5



International Mathematics Olympiad



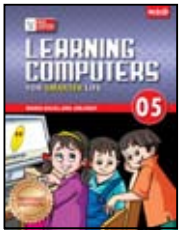
National Science Olympiad



National Cyber Olympiad

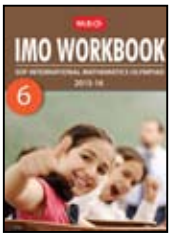


International English Olympiad

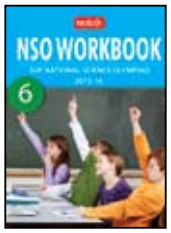


MTG CSS Series

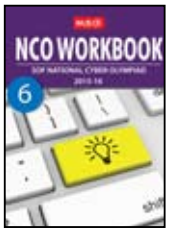
CLASS 6



International Mathematics Olympiad



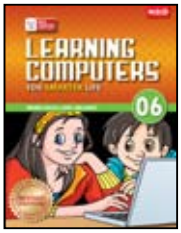
National Science Olympiad



National Cyber Olympiad



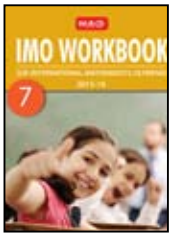
International English Olympiad



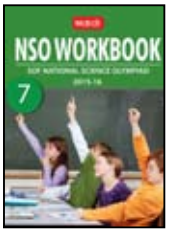
MTG CSS Series

MTG WORK-BOOKS / OLYMPIAD BOOKS

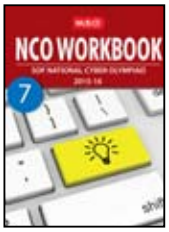
CLASS 7



International Mathematics Olympiad



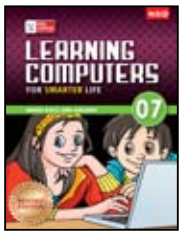
National Science Olympiad



National Cyber Olympiad



International English Olympiad



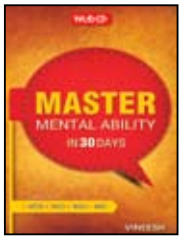
MTG CSS Series



Math IQ Challenge

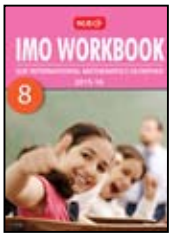


Science IQ Challenge

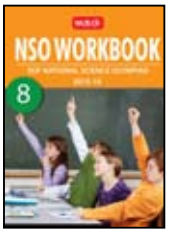


Master Mental Ability in 30 Days

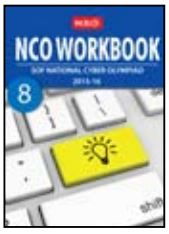
CLASS 8



International Mathematics Olympiad



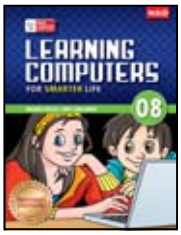
National Science Olympiad



National Cyber Olympiad



International English Olympiad



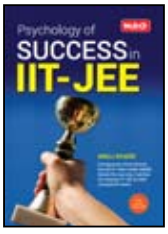
MTG CSS Series



Math IQ Challenge



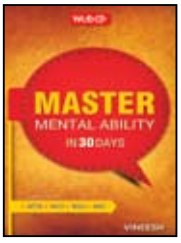
Science IQ Challenge



Psychology of Success



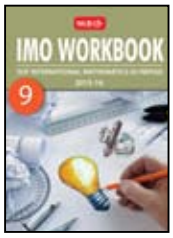
The Secrets of SUCCESS



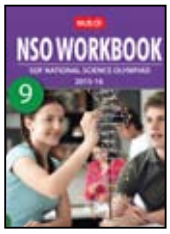
Master Mental Ability in 30 Days

MTG WORK-BOOKS / OLYMPIAD BOOKS

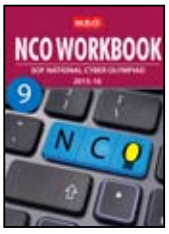
CLASS 9



International Mathematics Olympiad



National Science Olympiad



National Cyber Olympiad



International English Olympiad



Math IQ Challenge



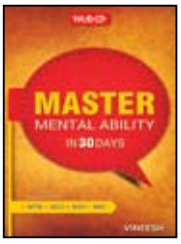
Science IQ Challenge



Psychology of Success

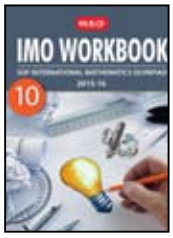


The Secrets of SUCCESS

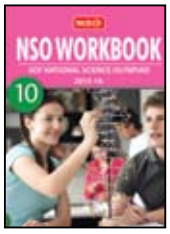


Master Mental Ability in 30 Days

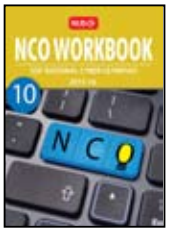
CLASS 10



International Mathematics Olympiad



National Science Olympiad



National Cyber Olympiad



International English Olympiad



Math IQ Challenge



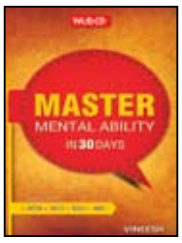
Science IQ Challenge



Psychology of Success



The Secrets of SUCCESS



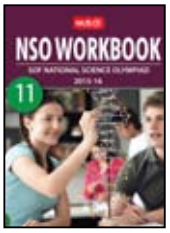
Master Mental Ability in 30 Days

MTG WORK-BOOKS / OLYMPIAD BOOKS

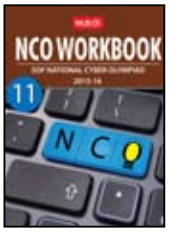
CLASS 11



International Mathematics Olympiad



National Science Olympiad



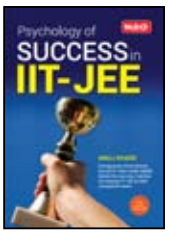
National Cyber Olympiad



Math IQ Challenge



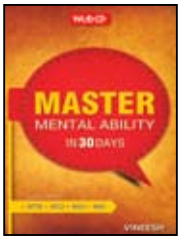
Science IQ Challenge



Psychology of Success

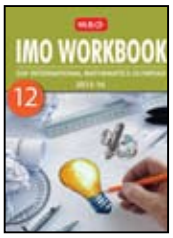


The Secrets of SUCCESS

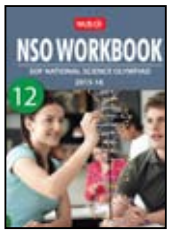


Master Mental Ability in 30 Days

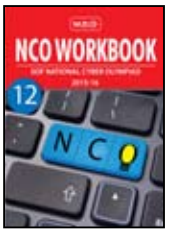
CLASS 12



International Mathematics Olympiad



National Science Olympiad



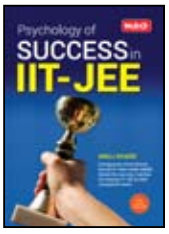
National Cyber Olympiad



Math IQ Challenge



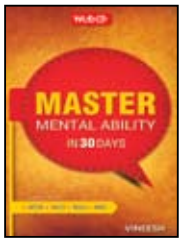
Science IQ Challenge



Psychology of Success



The Secrets of SUCCESS



Master Mental Ability in 30 Days

mtG

The Official Olympiads' Book of

REASONING



Class
1 to 10

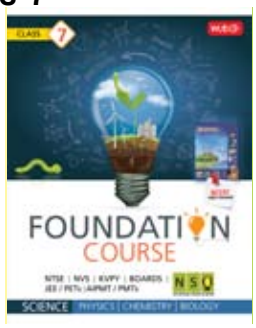
JEE (Main & Advanced) | AIPMT | BOARDS | OLYMPIAD | NTSE

FOUNDATION COURSE

For Classes 7, 8, 9 & 10

Class 7





Class 8

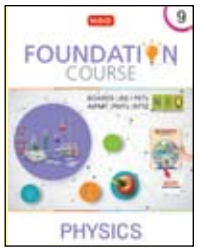


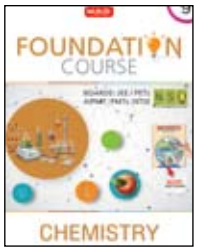


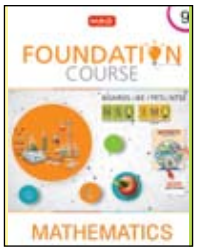


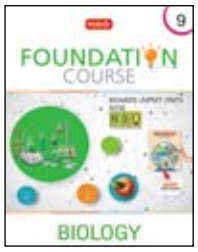


Class 9

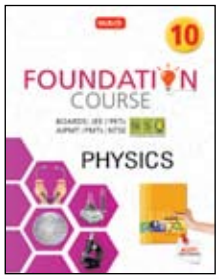


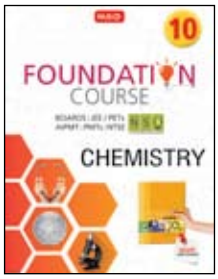


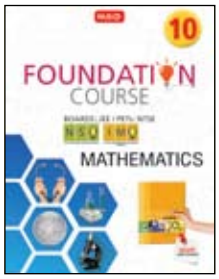


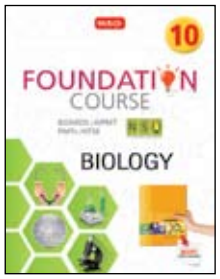


Class 10









SCIENCE OLYMPIAD FOUNDATION

Class 4

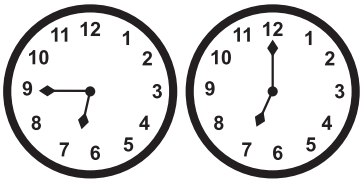
13th NSO

Year 2010

Copyright©2015. Science Olympiad Foundation (SOF)

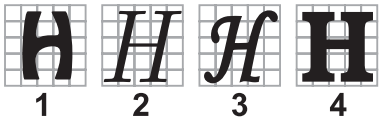
MENTAL ABILITY

1. The minute hand of a clock moved from 9 to 12. What part of an hour is this?



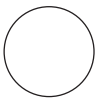
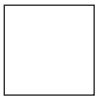
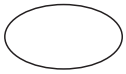
(A) One quarter
(B) One half
(C) Three quarters
(D) One whole

2. Which of the following figures has a line of symmetry?

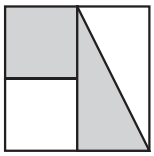


(A) 1 & 4 **(B)** 2 & 4
(C) 1, 2 & 4 **(D)** Only 4

3. Which of the following shapes could be the face of a cube?

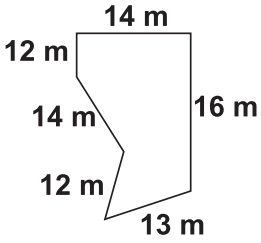
(A)  **(B)**  **(C)**  **(D)** 

4. In the given figure, what fraction of the square is shaded?



(A) $\frac{1}{4}$ **(B)** $\frac{1}{2}$ **(C)** $\frac{1}{6}$ **(D)** $\frac{1}{8}$

5. What is the perimeter of the given figure?



(A) 81 m
(B) 91 m
(C) 101 m
(D) 71 m

6. How can 306,470 be written in words ?

(A) Thirty-six thousand, four hundred seventy
(B) Three hundred six thousand, four hundred seventy
(C) Thirty-six thousand, forty-seven
(D) Three hundred six thousand, forty-seven

7. What is the rule followed in the given Input-Output table ?

Input	Output
27	62
56	91
75	110
109	144

(A) Add 25
(B) Add 35
(C) Add 36
(D) Add 45

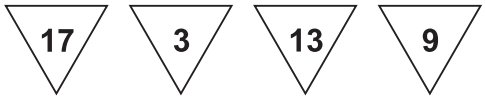
8. Rinki is helping a local organization by stuffing envelopes. She must stuff 500 envelopes. She has already stuffed 321 envelopes. Which equation can be used to find the number of envelopes that she has left to stuff ?

(A) $500 + 321 = n$ **(B)** $500 \times 321 = n$ **(C)** $500 \div 321 = n$ **(D)** $500 - 321 = n$

Copyright©2015. Science Olympiad Foundation (SOF)

9. Which one of the following statements about the given numbers is true?

(A) They are all factors of 39
(B) They are all divisible by 3
(C) They are all odd numbers
(D) They are all even numbers



10. Look at the given pattern of numbers.

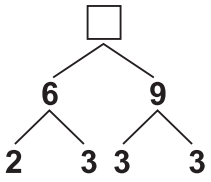
60, 75, 90, 105, 120, 135, ...

What is the rule used for this pattern?

(A) Each number is 25 greater than the number before it
(B) Each number is 15 greater than the number before it
(C) Each number is 15 less than the number before it
(D) Each number is 25 less than the number before it

11. A factor tree is shown in the figure. What number belongs in the box?

(A) 27
(B) 54
(C) 69
(D) 15



12. Look at the picture below. It shows the lengths of a necklace and a bracelet.



Which equation can be used to find *n*, the combined length of the necklace and the bracelet?

(A) $18 \times 6 = n$ **(B)** $18 - 6 = n$ **(C)** $18 + 6 = n$ **(D)** $18 \div 6 = n$

13. Arvind went to the doctor on February 6. His next appointment is 2 weeks later. How can he find the date of next appointment?

(A) Add 6 and 2 **(B)** Subtract 2 from 6 **(C)** Add 6 and 7 and 7 **(D)** Subtract 3 from 6

14. Look at the given table. It shows how many minutes Mohit read his book each day for three days.
If this pattern continues on Thursday, what is the total number of minutes taken by Mohit to read his book in these four days?

Day	Minutes
Monday	15
Tuesday	20
Wednesday	25
Thursday	

(A) 90 minutes **(B)** 60 minutes **(C)** 125 minutes **(D)** 75 minutes

15. Bhaskar had a 1-litre bottle of water. He drank half of the water. How much water is left in the bottle?

(A) 50 millilitres **(B)** 500 millilitres **(C)** 25 millilitres **(D)** 75 millilitres

Copyright©2015. Science Olympiad Foundation (SOF)

SCIENCE

16. Frozen water is called _____

(A) Fog **(B)** Ice **(C)** Steam **(D)** Vapour

17. Which sense can be used to determine an object's ability to reflect light?

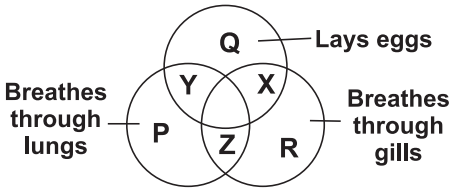
(A) Sight **(B)** Hearing **(C)** Smell **(D)** Taste

18. Which unit can be used to describe an object's length?

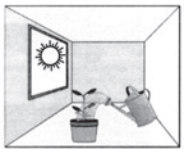
(A) Grams **(B)** Minutes **(C)** Litres **(D)** Metres

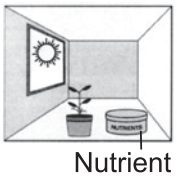
19. Study the given Venn diagram carefully.
Which letter represents the hen?

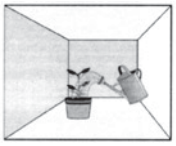
(A) Y **(B)** X
(C) Z **(D)** R

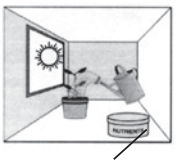


20. Plants need water, sunlight, air, and nutrients to grow tall. Which of these plants would grow the tallest ?

(A)


(B)


(C)


(D)


21. Given is a description of a plant.
Which one of the following is the plant likely to be?

I am a land plant.
I have flowers which grow singly.
My flowers give off a nice smell.

(A) Rose **(B)** Lotus **(C)** Dahlia **(D)** Sunflower

22. Which of the following characteristics can a puppy inherit from its parents?

(A) Muddy paws **(B)** Spotted fur **(C)** Broken foot **(D)** Scar on face

23. Which structure of a bird is correctly paired with its function?

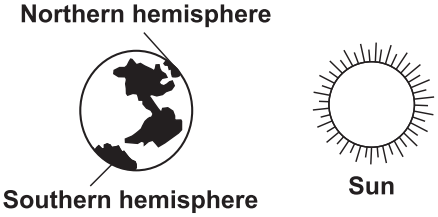
(A) Claws – Obtaining food **(B)** Wings – Eliminating waste
(C) Feathers – Breathing **(D)** Eyes – Growing

24. The given figure shows a fox and an owl both trying to catch a rabbit.
The fox and the owl are both _____

(A) Finding a mate **(B)** Competing for food
(C) Seeking shelter **(D)** Migrating for winter



25. Which of the following statements is NOT true for the positions of Sun and Earth as shown in the figure?



(A) At the North pole there is sunlight throughout the day and night.
(B) At the South pole there is no day light at all.
(C) It is summer in the Northern hemisphere. **(D)** It is summer in the Southern hemisphere.

Copyright©2015. Science Olympiad Foundation (SOF)

26. The energy that is stored in food originally comes from _____

(A) Air **(B)** Soil **(C)** Sunlight **(D)** Water

27. Which human response is most likely to occur when the temperature of the atmosphere is 45°C?

(A) Blinking **(B)** Salivating **(C)** Shivering **(D)** Sweating

28. As children grow, their height usually _____

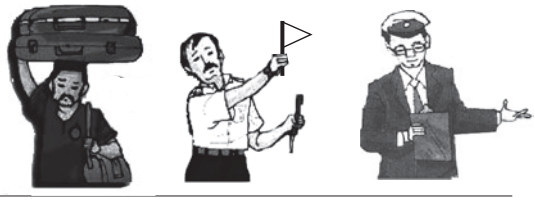
(A) Decreases **(B)** Increases **(C)** Remains the same **(D)** Cannot say

29. A student places soil in a plastic container to make a home for some worms. The student cuts holes in the top of the container because the worms need ___

(A) Space to move **(B)** Air to breathe

(C) Sunlight to grow **(D)** Sound to communicate

30. The persons shown in the given figures belong to which transport system?



(A) Bus **(B)** Ship

(C) Train **(D)** Both (B) & (C)

31. Which of the following behaviours will best help a student to stay healthy?

(A) Watching television five hours a day **(B)** Sleeping three hours each night

(C) Eating fruits and vegetables every day **(D)** Exercising once a month

32. Which of the following animals can be used as means of transport ?



a b c d e

(A) (a), (b) & (c)

(B) (b), (c) & (d)

(C) (a) & (e)

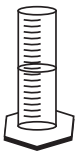
(D) (a), (b) & (e)

33. A student wants to measure the height of a plant over a period of time. Which instrument will he use?

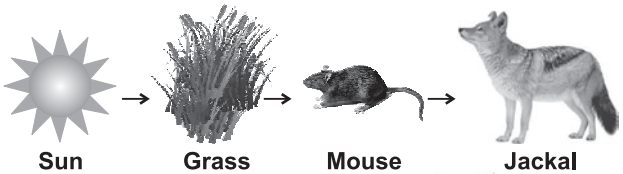
(A) 

(B) 

(C) 

(D) 

34. The given figure shows a simple food chain. Which of the following animals might compete with the jackal in this food chain?



Sun Grass Mouse Jackal

(A) 

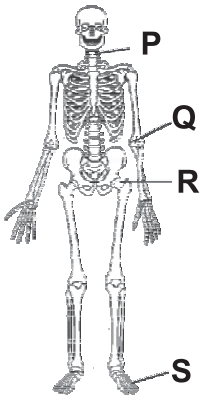
(B) 

(C) 

(D) 

Copyright©2015. Science Olympiad Foundation (SOF)

35. The given figure is of human skeletal system. At which joint (P, Q, R and S) can the movement be only like the opening and closing of a door ?



(A) P

(B) Q

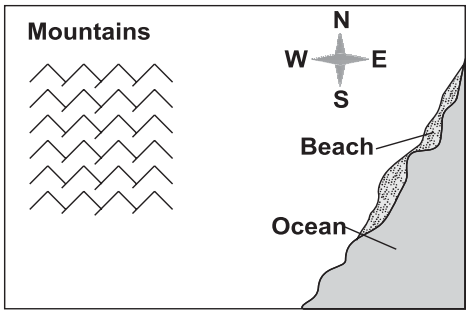
(C) R

(D) S.

36. Which of the following is a function of the skeletal system ?

(A) Support **(B)** Protection **(C)** Calcium storage **(D)** All of these

37. A student is sitting at the beach. Which direction are the mountains from the student?



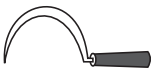
(A) North

(B) East

(C) South

(D) West

38. Select the correct match.

	Column I	Column II
(A)	Mason	
(B)	Carpenter	
(C)	Electrician	
(D)	Gardener	

39. Decantation can be represented by which of the following figures?

(A) 

(B) 

(C) 

(D) 

40. Birds that eat other birds usually have short, curved beaks and strong feet with sharp claws. Which of these birds most likely eats other birds?

(A) 
Parrot

(B) 
Dove

(C) 
Hawk

(D) 
House sparrow

Copyright©2015. Science Olympiad Foundation (SOF)

41. Which of the following planets is closest in size to Earth?

(A) Mars
(B) Saturn
(C) Venus
(D) Jupiter

Planet diameters (Kilometres)

Earth	Mars	Saturn	Venus	Jupiter
12,756	6,794	125,536	12,104	142,984

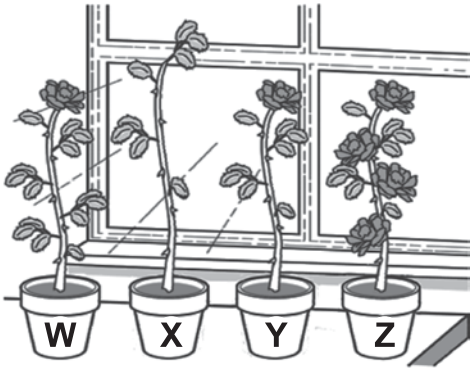
42. Students recorded the high and low air temperatures everyday for four days. On which day did the air temperature change the least?

(A) Monday
(B) Tuesday
(C) Wednesday
(D) Thursday

Days	Low temperature (°F)	High temperature (°F)
Monday	66	82
Tuesday	68	80
Wednesday	68	82
Thursday	64	78

43. A gardener watered each of these containers with equal amounts of water. Only one container was given fertilizer. To which plant was the fertilizer added ?

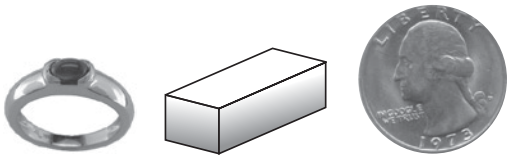
(A) Plant W
(B) Plant X
(C) Plant Y
(D) Plant Z



44. If two trees in a yard are parent and offspring, it must be true that both trees ___

(A) Have the same number of flower blooms **(B)** Have leaves that are of the same shape
(C) Produce the same amount of fruits **(D)** Are of same height

45. Which of the following properties is NOT shared by all the objects shown in the figure ?



(A) They all are solids.
(B) They will all sink in water.
(C) They will all attract a magnet.
(D) They all are made from earth materials.

46. Using solar energy, we can cook food with the help of ____

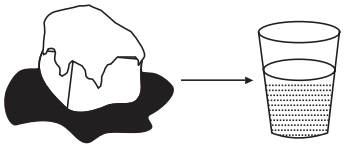
(A) Solar water heater **(B)** Solar battery **(C)** Solar cooker **(D)** None of these

47. The thick fur of animals living in colder regions _____

(A) Makes them appear beautiful **(B)** Protects them from enemies
(C) Keeps them warm **(D)** Protects them from water

48. The change that is occurring in the given figure is ____ .

(A) Boiling **(B)** Melting
(C) Freezing **(D)** Evaporation



Copyright©2015. Science Olympiad Foundation (SOF)

49. Which of the following is INCORRECT regarding the care of our teeth?

(A) We must brush our teeth everyday.
(B) We should not chew our food well.
(C) We should eat raw vegetables.
(D) We should clean our mouth with water after every meal.

50. Which is the correct way of disposing garbage?

(A) Throwing on the roof
(B) Throwing in the backyard of the house
(C) Throwing into covered pits
(D) Throwing in the playground

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

SCIENCE OLYMPIAD FOUNDATION

Class 4

14th NSO

Year 2011

Copyright©2015. Science Olympiad Foundation (SOF)

MENTAL ABILITY

1. Komal bought four different types of vegetables from the store. The weight of each type of vegetable she bought is shown in the given table.
Which vegetable weighed the most ?

Carrot	900 grams
Brinjal	1 kilogram
Radish	2 kilograms
Cucumber	30 grams

(A) Carrot **(B)** Brinjal **(C)** Radish **(D)** Cucumber

---

2. In its first year of business, a company had 5 employees. In its second year, there were 25 employees, and in its third year, there were 125 employees. If the pattern continues, how many employees will the company have in the fourth year?

(A) 250 **(B)** 625 **(C)** 3,125 **(D)** 15,625

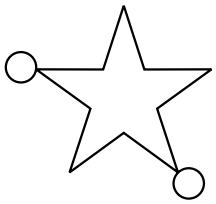
---

3. Sonu and his mother have baked 24 cookies. They need a total of 120 cookies. If *c* stands for the number of cookies they still need to bake, which number sentence should Sonu and his mother use to find *c* ?

(A) 120 – 24 = *c* **(B)** *c* x 24 = 120 **(C)** 120 + 24 = *c* **(D)** *c* x 120 = 24

---

4. How many lines of symmetry does the given figure have ?



(A) 1
(B) 2
(C) 0
(D) 3

---

5. Aman made this list of the amount of time he and his friends in the school band spent practicing on Saturday.
How should Aman arrange the names so that they are in order from least to greatest amount of practice time?

Member of band	Practice time
Aman	110 minutes
Amit	50 minutes
Dev	3 hours
Naveen	1 hour

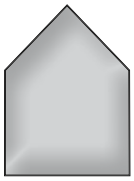
(A) Naveen < Amit < Aman < Dev **(B)** Amit < Aman < Naveen < Dev
(C) Naveen < Dev < Amit < Aman **(D)** Amit < Naveen < Aman < Dev

---

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

6. **Mona uses this symbol to stand for a house on the map she is drawing. How many right angles will she need to draw each time she draws this symbol?**

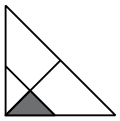
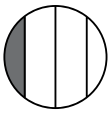


(A) 1 **(B)** 2 **(C)** 3 **(D)** 5

7. **Which number sentence does not belong to the same family or group of sentences as the other three?**

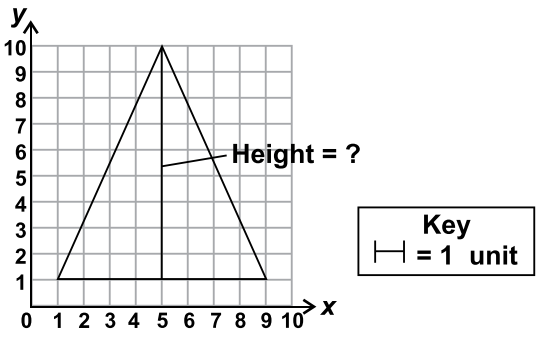
(A) 3 x 9 = 27 **(B)** 27 ÷ 9 = 3 **(C)** 9 x 3 = 27 **(D)** 9 ÷ 3 = 3

8. **Which figure represents $\frac{1}{4}^{th}$ shaded part ?**

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

9. **Tina found a triangular flag. She traced the flag on graph paper, as shown.**
What was the height of the triangular flag?

(A) 4 units
(B) 8 units
(C) 9 units
(D) 10 units



10. **A junior high marching band is making a formation for the halftime show. There are 10 students in the first row, 11 students in the second row, 13 students in the third row, and 16 students in the fourth row. Which statement correctly describes how to find the total number of students in the fifth row?**

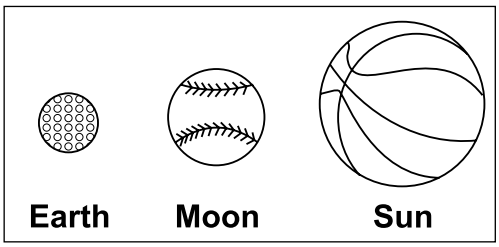
(A) Add 3 to the number of students in the fourth row.
(B) Add 4 to the number of students in the fourth row.
(C) Add 5 to the number of students in the fourth row.
(D) Add 6 to the number of students in the fourth row.

SPACE FOR ROUGH WORK

Copyright©2015, Science Olympiad Foundation (SOF)
Copyright©2014. Science Olympiad Foundation (SOF)

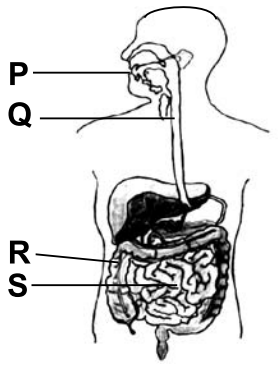
SCIENCE

11. Priya made a model of heavenly bodies, using a golf ball, a baseball, and a basketball as shown in the given figure. How could Priya improve her model?



(A) By making the Moon smaller than Earth.
(B) By using a flat object, such as a coin, for Earth.
(C) By placing Earth between the Moon and the Sun.
(D) By placing the Sun in between the Moon and Earth

12. Which labelled part in the given figure absorbs nutrients from food?

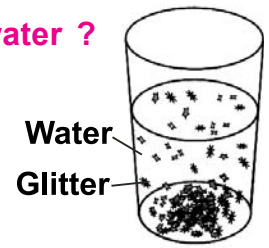


(A) P
(B) Q
(C) R
(D) S

13. Which statement is true about the planet Saturn?

(A) It is bigger than Earth and farther from the Sun.
(B) It is bigger than Earth and closer to the Sun.
(C) It is smaller than Earth and farther from the Sun.
(D) It is smaller than Earth and closer to the Sun.

14. During an art class, Mala dropped some metallic glitters into a glass of water as shown in the figure. How can she separate the glitters from the water ?



(A) Boiling
(B) Filtration
(C) Condensation
(D) Freezing

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

15. Which of the following body parts belongs to the skeletal system?

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

---

16. A student measured the volume of water in a pan. He boiled the water for thirty minutes and then measured the volume of the water again. The volume of water _____.

(A) Decreased
(B) Increased
(C) Remained the same
(D) Data is insufficient

---

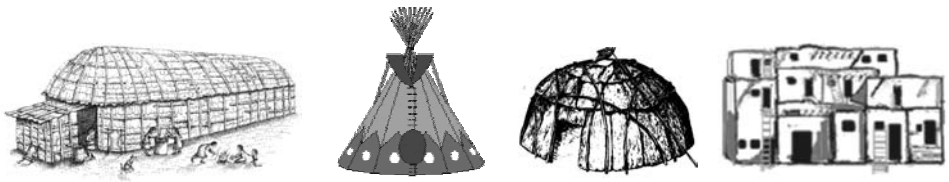
17. The given figure shows the life cycle of a frog in which different stages of development are labelled as P, Q, R, and S. Which is the adult stage of development?



(A) P
(B) Q
(C) R
(D) S

---

18. What is the main reason that different cultures of Native Americans had following types of homes?



Types of Native American homes

(A) Homes were designed to protect families from wild animals.
(B) The number of people was different from tribe to tribe.
(C) Homes were built from natural resources that were found nearby.
(D) Native Americans built their homes to look like the homes of European settlers.

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

19. Ritika is studying a liquid. If she lowers the temperature of the liquid, which will most likely occur?

(A) The liquid will boil
(B) The liquid will melt
(C) The liquid will freeze
(D) The liquid will evaporate

---

20. Which of the following is correct regarding water ?

(A) Water has definite mass
(B) Water has definite shape
(C) All things dissolve in water
(D) All of these

---

21. Which statement best explains how a microscope helps scientists?

(A) A microscope allows scientists to see things that are far away.
(B) A microscope allows scientists to see things that are small.
(C) A microscope allows scientists to hear sounds that are far away.
(D) A microscope allows scientists to hear sounds that are very low.

---

22. Which foot would most likely help a bird to live in water?

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

---

23. Sonia is studying cells that are too small to see with her eyes alone. Which tool would be most helpful for Sonia in observing the cells ?

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

---

24. The figure shows a glass of water and a stone. When the stone is placed in the glass, the water level will _____.


Glass of water


Stone

(A) Decrease
(B) Increase
(C) Remain the same
(D) Cannot be predicted

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

25. The figure shows a fox and an owl both trying to catch a rabbit.

The fox and the owl are both _____.

(A) Finding a mate
(B) Competing for food
(C) Seeking shelter
(D) Migrating in winter

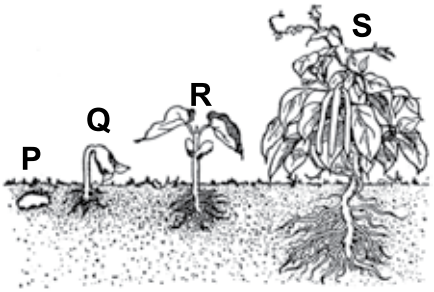


26. Which two environmental changes usually cause certain animals to migrate?

(A) Change of season and fewer predators **(B)** Change of season and less food
(C) Loss of habitat and fewer predators **(D)** Loss of habitat and more food

DIRECTION : Refer the following paragraph and answer Q. nos. 27 and 28.

The given figure shows four stages in the growth and development of a bean plant. The stages are labelled as P, Q, R and S.



27. In which stage is germination first visible ?

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

28. Which new structure first appears in stage S ?

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

29. Which term describes the role of corn in the given food chain?

(A) Carnivore **(B)** Consumer
(C) Herbivore **(D)** Producer



30. Which of the following has inedible seeds ?

(A) 

(B) 

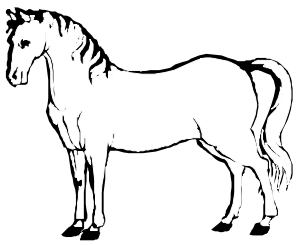
(C) 

(D) 

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

31. The animal in the given figure belongs to which category ?



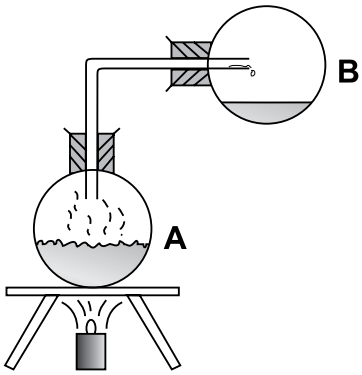
(A) Herbivore

(B) Carnivore

(C) Omnivore

(D) Producer

32. Examine the experiment as shown in the given figure. 400 ml of water in flask A is heated until it is completely evaporated. The amount of water collected in flask B is about _____.



(A) 200 ml

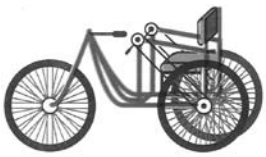
(B) 350 ml

(C) 300 ml

(D) 400 ml

33. Which of the following vehicles is specially designed for disabled ?

(A) 

(B) 

(C) 

(D) 

34. Which of the following uses radiowaves ?

(A) Radio **(B)** Television **(C)** Mobile phone **(D)** All of these

35. The tool shown in the figure is used by which of the following persons ?



(A) Plumber **(B)** Mason

(C) Painter **(D)** Architect

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

SCIENCE OLYMPIAD FOUNDATION

Class 4

15th NSO

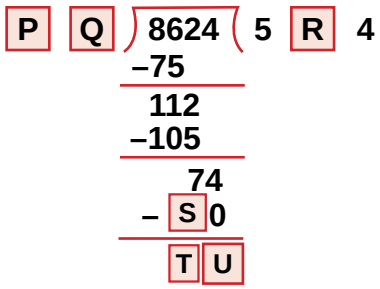
SET A

Year 2012

Copyright©2015. Science Olympiad Foundation (SOF)

MENTAL ABILITY

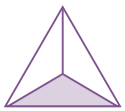
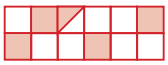
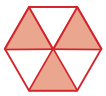
1. The missing digits P, Q, R, S, T and U in the adjoining division are _____ respectively.



(A) 1, 5, 7, 1, 4, 6
(B) 1, 7, 5, 6, 1, 4
(C) 1, 5, 6, 7, 1, 4
(D) 1, 5, 7, 6, 1, 4

---

2. Match the figures given in Column-I with their correct shaded fractions given in Column-II.

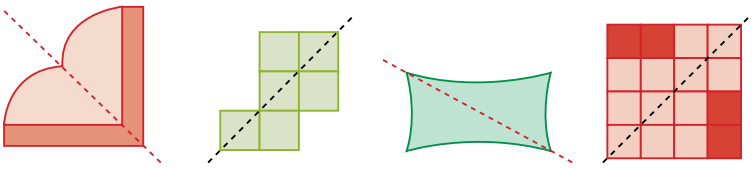
Column-I	Column-II
(a) 	1. 3/8
(b) 	2. 1/3
(c) 	3. 1/2
(d) 	4. 1/4

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

---

3. In which of the following figure the dotted lines are NOT lines of symmetry?

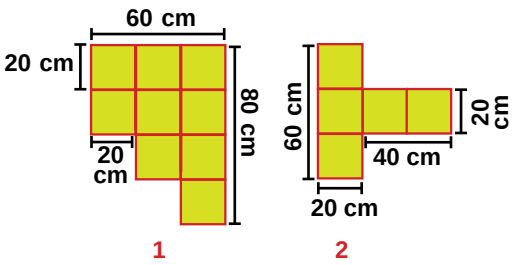
(A) 1 and 4
(B) 2 and 3
(C) 2 and 4
(D) 1, 2, 3 and 4



---

4. Which of the given figures has the greatest perimeter?

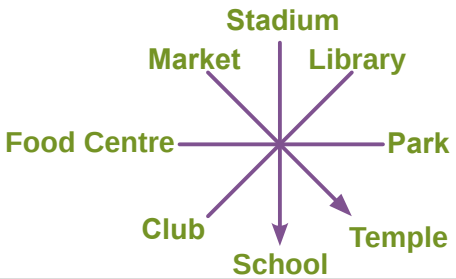
(A) 1 only
(B) 2 only
(C) 3 only
(D) Both 2 and 3



---

5. Jayati is facing south-east. If she turns 3 right angles anti-clockwise, then she will be facing _____.

(A) Park
(B) Food Centre
(C) Club
(D) Temple

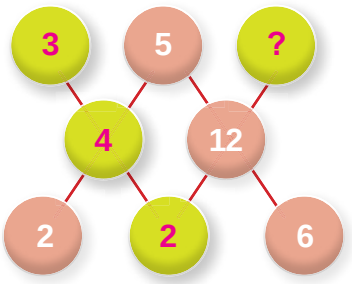


Copyright©2015. Science Olympiad Foundation (SOF)

6. If ▢ + ▢ + ▢ + ▢ + ▢ = 3125 and ▢ ÷ ★ = ★, then the value of ★ + ★ + ★ + ▢ + ▢ = ?

(A) 625 **(B)** 1425 **(C)** 1275 **(D)** 1325

7. The missing number in the given pattern is _____.



(A) 8

(B) 10

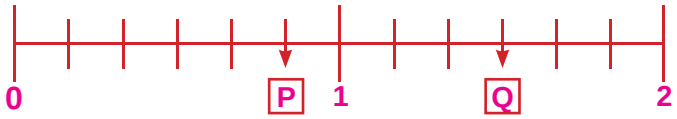
(C) 13

(D) 16

8. I am a two-digit number less than 50. I am a multiple of 3. The product of my digits is fourth multiple of 5. I am _____.

(A) 15 **(B)** 54 **(C)** 35 **(D)** 45

9. The value of P + Q = _____.



(A) 9/4 **(B)** 9/2 **(C)** 7/6 **(D)** 7/3

10. The maximum number of cards measuring 2 cm by 4 cm that can be cut from a piece of cardboard 12 cm by 20 cm is _____.

(A) 11 **(B)** 15 **(C)** 24 **(D)** 30

SCIENCE

11. Meena planted tape grass in a pot of soil and watered it regularly. After a few days, the plant died. Which of the following is the most appropriate reason for it?

(A) Tape grass flourishes more on ground than in pot.
(B) Tape grass is an aquatic plant.
(C) Tape grass does not require regular watering.
(D) Water might be of bad quality.

12. Which of the following statements are INCORRECT?

1. Whales and dolphins breathe through gills as they are aquatic animals.
2. Warm-blooded animals have the same temperature inside their body all the time.
3. Elephants can trick their enemies by camouflaging.
4. Parasites feed on the flesh of dead animals.

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

Copyright©2015, Science Olympiad Foundation (SOF)
Copyright©2014. Science Olympiad Foundation (SOF)

13. Mansi did a study on two animals, P and Q. At the end of her study she prepared following table about her observations.

What is the name of these two animals?

Observations	Animal P	Animal Q
Eggs are laid on land.	✓	✗
There are 4 stages in the life cycle.	✗	✓
It has six legs.	✓	✓

	Animal P	Animal Q
(A)	Butterfly	Frog
(B)	Cockroach	Mosquito
(C)	Cockroach	Frog
(D)	Butterfly	Cockroach

---

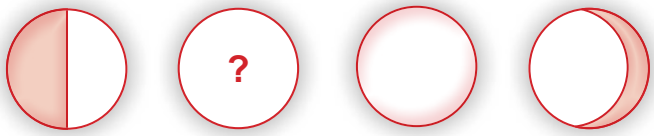
14. Megha spread a layer of grease on the stem, leaf stalks and both surfaces of the leaves of a plant. The plant was then placed near an open window and watered daily. After a week, the plant wilted. Select the correct reasons for wilting of the plant from the reasons given below.

1. **The layer of grease prevented water from reaching the leaves.**
2. **The layer of grease prevented the leaves from absorbing sufficient sunlight.**
3. **The layer of grease prevented the exchange of gases.**
4. **The layer of grease prevented food from reaching the leaves.**

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

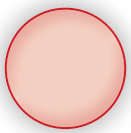
---

15. The figures given below show the shapes of the Moon as seen from Earth on different nights.



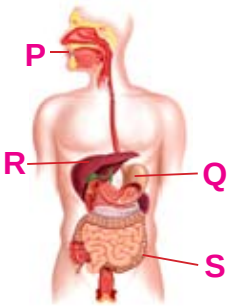
18th October 21st October 25th October 28th October

Which one of the following figures shows the correct shape of the Moon on 21st October?

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

---

16. In which labelled part of the human digestive system, does the water get absorbed the most?



(A) O

(B) R

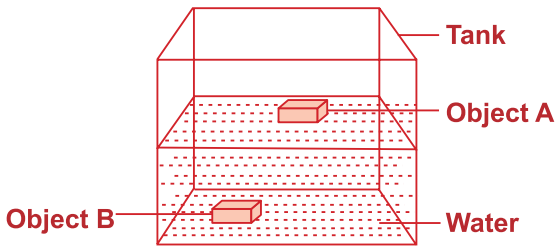
(C) P

(D) S

Copyright©2015, Science Olympiad Foundation (SOF)
Copyright©2014. Science Olympiad Foundation (SOF)

17. Observe the given figure.

Which of the following statements best describes the difference in properties of the two objects A and B?



(A) Object A is strong but object B is weak.

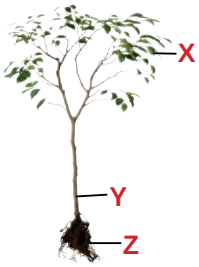
(B) Object A is flexible but object B is stiff.

(C) Object A is soft but object B is hard.

(D) Object A is light but object B is heavy.

---

18. Study the given figure. Which plant part(s) has/have been INCORRECTLY matched with its function?

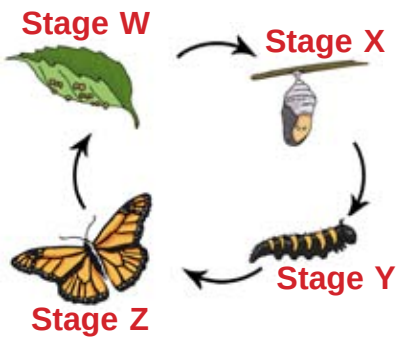


Parts	Functions
X	Makes food for the plant
Y	Holds the plant firmly to the ground
Z	Absorbs water for the plant

(A) X only **(B)** X and Z **(C)** Y only **(D)** Y and Z

---

19. Chetan drew the life cycle of a butterfly as shown in the figure. It is INCORRECT because _____.



(A) Stage Z should come before Stage Y

(B) Stage W should come before Stage Z

(C) Stage X should come after Stage Y

(D) Stage Y should come after Stage Z

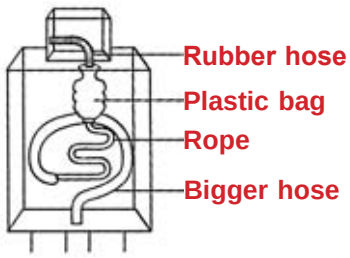
---

20. I am a house made of snow. I am a place for Eskimos to live in. What am I?

(A) Igloo **(B)** Tent **(C)** Skyscraper **(D)** Caravan

---

21. The given diagram shows a model which some students have made using scrap materials to represent parts of the digestive system of a man. Select the option in which the scrap materials used by the students correctly represent the parts of the digestive system.



	Rubber hose	Plastic bag	Rope	Bigger hose
(A)	Small intestine	Liver	Gullet	Large intestine
(B)	Gullet	Stomach	Large intestine	Small intestine
(C)	Gullet	Stomach	Small intestine	Large intestine
(D)	Large intestine	Liver	Gullet	Small intestine

Copyright©2015. Science Olympiad Foundation (SOF)

22. Which of the following is INCORRECTLY classified?

	Respiratory system	Skeletal system
(A)	Anus	Brain
(B)	Wind pipe	Spine
(C)	Lungs	Skull
(D)	Nasal openings	Rib cage

23. Which of the following is INCORRECTLY matched with the materials of which it is made?

	Wood	Plastic	Metal	Glass	Clay
(A) Cooking pot	✓	✓	✓	×	✓
(B) Comb	✓	✓	×	×	×
(C) Spoon	✓	✓	✓	✓	✓
(D) Container	✓	✓	✓	✓	✓

24. It takes 365 days for one revolution by _____.

(A) Sun on its axis **(B)** Earth on its axis **(C)** Moon in its orbit **(D)** Earth in its orbit

25. Who was the first man to step on the Moon?

(A) Rakesh Sharma **(B)** Kalpana Chawla **(C)** Neil Armstrong **(D)** Yuri Gagarin

26. Which of the following students has made INCORRECT statement?

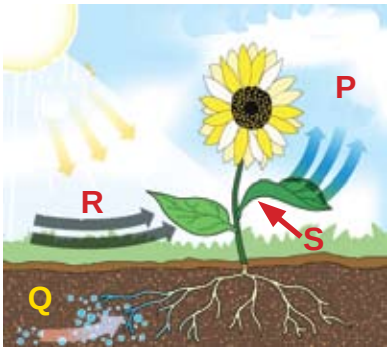
(A) Megha : Do not throw away the water in which pulses are soaked. It contains vitamins. Use it for watering plants.
(B) Garima : Roasting and frying of food, preserves its nutrient value for a long time.
(C) Amit : Do not wash vegetables and fruits after cutting them.
(D) Latika : Cooking makes food soft, tasty and easily digestible.

27. The given table shows certain features of synthetic fibres. Which of the following can be used to fill the blank in the table?

(A) Stretchable
(B) Waterproof
(C) Wrinkle-free
(D) All of these

Synthetic fibres
Artificially prepared
Dry very quickly
Examples are nylon, rayon and polyster

28. The given figure shows the process of photosynthesis. Identify the components labelled as P, Q, R and S, which are parts of this process.



	P	Q	R	S
(A)	Carbon dioxide	Water	Oxygen	Glucose absorbed
(B)	Carbon dioxide	Oxygen	Water	Glucose absorbed
(C)	Oxygen	Carbon dioxide	Water	Glucose produced
(D)	Oxygen	Water	Carbon dioxide	Glucose produced

Copyright©2015. Science Olympiad Foundation (SOF)

29. Which of the following is a CORRECT match?

(A) Aerial animal – Toad
(B) Arboreal animal – Monkey
(C) Terrestrial animal – Crab
(D) Aquatic animal – Polar bear

30. Mohit was going somewhere. On the way near a hospital he saw the given sign. Which option justifies its presence near a hospital?



(A) The given sign is for "hospital ahead" which signifies to slow down the speed of the vehicles.
(B) The given sign is for "no honking" as honking creates pleasant sounds which make patients resting in the hospital comfortable.
(C) The given sign is for "no-honking" as honking creates loud noises which make patients resting in the hospital uncomfortable.
(D) The given sign is for "no parking" which signifies to park vehicles far away from the hospital premises.

31. Observe the given picture. What does it show?



(A) It shows that plants respond to the gravity.
(B) It shows that plants respond to the changes in their surroundings.
(C) It shows that plants need air, water and light to grow.
(D) It shows that plants respond to touch.

32. There is a special way of reading and writing for people who cannot ____. It is called Braille system. It is written on a ____ paper by making row of ____ points with a pointed tool. Select the correct sequence of words to complete the above paragraph.

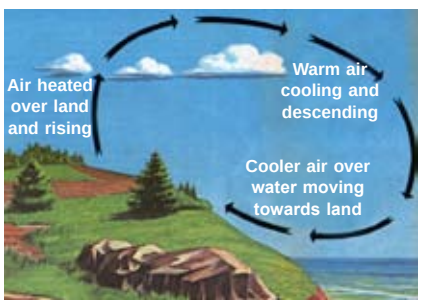
(A) See, Thin, Hollow
(B) Hear, Thick, Raised
(C) See, Thick, Raised
(D) Speak, Thin, Hollow

33. X, Y and Z show three states of matter. Which of the following are usually present in their respective states?

	X	Y	Z
(A)	LPG	Pencil	Cold drink
(B)	Helium	Water	Eraser
(C)	Milk	Candle	Pencil
(D)	Helium	LPG	Milk



34. Observe the given figure carefully. What does it show?



(A) Mountain breeze
(B) Land breeze
(C) Sea breeze
(D) All of these

Copyright©2015. Science Olympiad Foundation (SOF)

35. The given figure shows a special vehicle. Which of the following is CORRECT regarding this?



(A) It is used to put out fires.

(B) It is used to carry goods on ground.

(C) It is used to carry passengers up and down a mountain.

(D) It is driven by large balloon filled with hot air.

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

SCIENCE OLYMPIAD FOUNDATION

Class 4

15th NSO

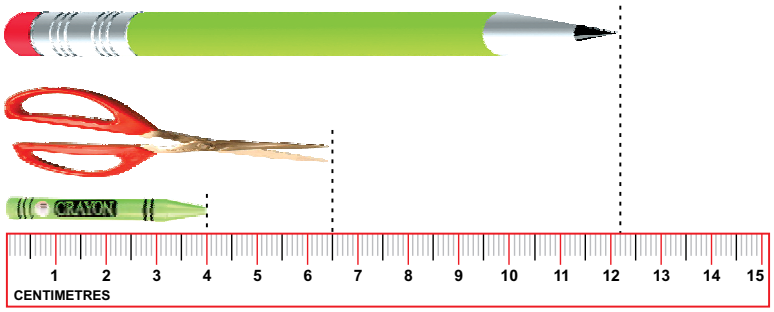
SET B

Year 2012

Copyright©2015. Science Olympiad Foundation (SOF)

MENTAL ABILITY

1. Difference between the (sum of lengths of pencil & crayon) and (pair of scissors) is _____.

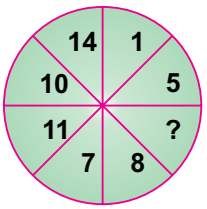


(A) 16.2 cm
(B) 10.2 cm
(C) 9.7 cm
(D) 6.7 cm

2. Difference between XXXIV and XXVII is _____.

(A) VIII **(B)** VII **(C)** IX **(D)** V

3. Find the missing number in the adjoining number pattern.

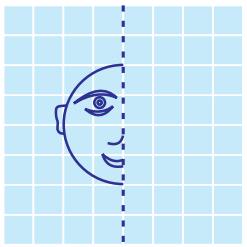


(A) 3
(B) 4
(C) 5
(D) 2

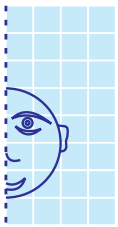
4. A part of the figure is drawn. Complete the given figure, if the dotted line is the line of symmetry.

(A) 

(B) 



(C) 

(D) 

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

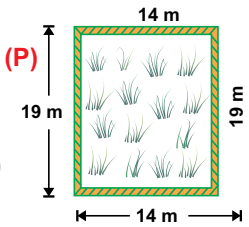
5. Which of the following is the correct match of figures with perimeter?

(A) (P) only

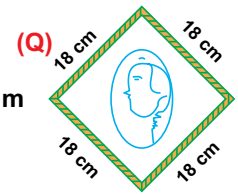
(B) (Q) only

(C) Both (P) and (Q)

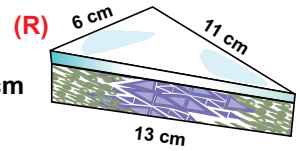
(D) Both (P) and (R)



= 66 m



= 72 cm



= 32 cm

6. The cost of few items are given below. Calculate the cost of 3 balls, 5 umbrellas, 9 pens and 8 erasers.

(A) ₹ 470

(B) ₹ 476

(C) ₹ 478

(D) ₹ 500



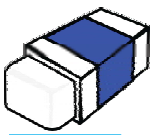
₹ 37.00



₹ 63.00



₹ 4.00



₹ 2.00

7. Find the INCORRECT match of shaded fractions.

	Shapes	Improper fractions	Mixed fractions
(A)		$\frac{3}{2}$	$1\frac{1}{2}$
(B)		$\frac{9}{4}$	$2\frac{1}{4}$
(C)		$\frac{4}{3}$	$1\frac{1}{3}$
(D)		$\frac{5}{3}$	$1\frac{1}{3}$

8. Find the values of P, Q and R respectively in the given division problem.

(A) 8, 2, 2

(B) 8, 8, 2

(C) 2, 8, 2

(D) 2, 2, 8

$$\begin{array}{r} 10 + P = 12 \\ 24\overline{)310} \\ -240 \\ \hline 70 \\ -4Q \\ \hline 2R \end{array}$$

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

9. If ₹ 100 note and a ₹ 50 note were paid to the shopkeeper to pay the bill given below, then amount received as change is _____ .

Bill	
Tiffin box	₹ 16.00
Water bottle	₹ 43.00
School bag	₹ 75.00
Pencil box	₹ 11.00





(A) ₹ 10.00 **(B)** ₹ 5.00 **(C)** ₹ 6.00 **(D)** ₹ 7.00

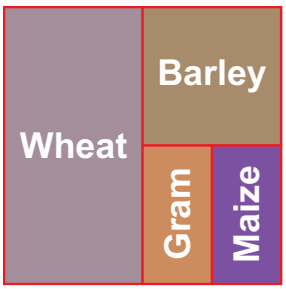
---

10. Here are some rabi crops that Raghu grew on his farm. Study the picture and then fill in the blanks.

(i) Raghu grows __a__ on $\frac{1}{2}$ of his farm.

(ii) He uses $\frac{1}{4}$ of the farm to grow __b__.

(iii) He grows __c__ and __d__ on $\frac{1}{8}$ of the farm.



	a	b	c	d
(A)	Barley	Wheat	Gram	Maize
(B)	Gram	Wheat	Barley	Maize
(C)	Maize	Gram	Barley	Wheat
(D)	Wheat	Barley	Gram	Maize

SCIENCE

11. The food prepared by the leaves is used by the plants for their daily activities. The extra food gets stored as starch in _____.

(A) Roots **(B)** Stems **(C)** Fruits **(D)** All of these

---

12. The type of tree shown in the given picture grows in _____ regions.



(A) Plain
(B) Mountain
(C) Desert
(D) Marsh

---

13. Which of the following is/are gaseous state of water?

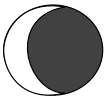
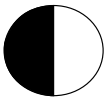
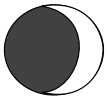
1. Rain **2. Dew** **3. Frost** **4. Water vapour**

(A) 4 only **(B)** 3 only **(C)** 1 and 2 **(D)** 2 and 3

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

14. Zarrin has noted in her calender, 15th November : Full Moon. Which shape of the Moon she would most likely observe on 29th November?

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

15. Select the correct statement.

(A) Roughage present in vegetables and fruits must be discarded.

(B) Overcooking decreases the nutritive value of food.

(C) Preserved food has more nutritive value than the fresh food.

(D) Growing children need more fats to build strong muscles.

16. Which of the following characteristics is shared by all the animals in the given box?

Prawn, Crab, Tadpole, Whale

(A) They live in water. **(B)** They breathe through gills.

(C) They lay eggs. **(D)** They look after their young ones.

17. Rahul is visiting his friend who is admitted in a hospital. On his way to hospital, he gets confused to take which route. He then studies the map. Which of these symbols on map will help him in locating the hospital?

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

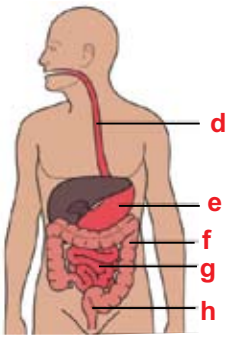
18. I revolve around the Sun. I am the brightest and the hottest member of the solar system. Who am I?

(A) Blue Planet **(B)** Red Planet **(C)** Evening Star **(D)** North Star

19. The given figure shows human digestive system with parts labelled as d, e, f, g and h. In which labelled parts the following occur?

(1) Acid and enzymes break the food.

(2) Absorbs only water from the food.



	(1)	(2)
(A)	e	d
(B)	e	g
(C)	e	f
(D)	f	g

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

20. We always need to store liquid in containers. It is because _____.

(A) Liquid has no fixed shape **(B)** Liquid can flow
(C) Liquid has fixed volume **(D)** Both (A) and (B)

21. The first Indian to go into space was _____.

(A) Kalpana Chawla **(B)** Rakesh Sharma
(C) Sunita Williams **(D)** Yuri Gagarin

22. Match Column-I with Column-II and select the correct answer.

Column-I	Column-II
(a) Helps in producing babies	(1) Excretory system
(b) Controls our actions	(2) Reproductive system
(c) Supplies oxygen to all parts of the body	(3) Circulatory system
(d) Removes wastes from the body	(4) Nervous system

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

23. Which of the following methods of cooking are healthy for an obese person?

1. Baking **2.** Steaming **3.** Boiling
4. Frying **5.** Roasting

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

24. Which of these teeth act in the similar manner as the instrument shown in the picture?



(A) Incisors
(B) Premolars
(C) Canines
(D) Molars

25. We add talcum powder on carrom board to reduce _____.

(A) Gravitational force **(B)** Frictional force
(C) Elastic force **(D)** All of these

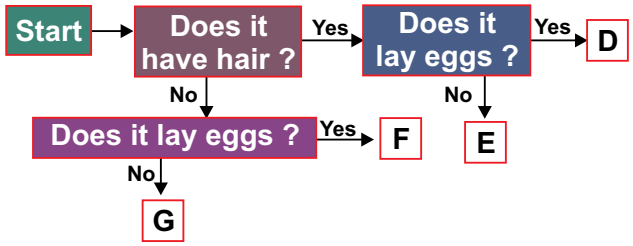
SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

26. _____ is a group of seven stars. _____ helps sailors and people to identify directions.
Select the correct sequence of words to fill up the blanks.

(A) Big dipper, Moon
(B) Solar system, Pole star
(C) Solar system, Venus
(D) Big dipper, Pole star

27. Study the given flowchart. What animals D, E, F and G are most likely to be?



	D	E	F	G
(A)	Seal	Guppy	Platypus	Penguin
(B)	Platypus	Seal	Penguin	Guppy
(C)	Platypus	Penguin	Seal	Guppy
(D)	Penguin	Seal	Guppy	Platypus

28. The given table shows the characteristics of three objects X, Y and Z. Which of the following sets of objects best fits the description given in the table?

Characteristic / Object	X	Y	Z
Bends easily	✓	✓	✓
Gets stretched easily	✓	✓	✗
Absorbs water	✗	✓	✓

	X	Y	Z
(A)	Rubber boots	Cardboard	Rubber band
(B)	Paper	Swimsuit	Rubber band
(C)	Rubber band	Sponge	Cardboard
(D)	Cardboard	Rubber board	Swimsuit

29. Ashutosh weighed himself on a weighing scale. What is Ashutosh's weight ?



(A) 74 kg
(B) 72 kg
(C) 78 kg
(D) 75 kg

30. Identify the given types of feet (d, e, f) of the birds and select the correct option.

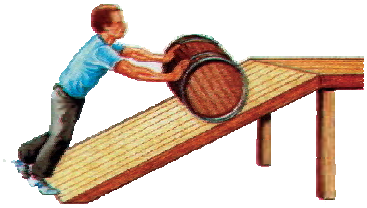

(d) (e) (f)

	d	e	f
(A)	Hawk	Hen	Sparrow
(B)	Eagle	Crow	Duck
(C)	Hawk	Duck	Mynah
(D)	Crow	Hen	Heron

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

31. Ashok is pushing a loaded barrel through a slope onto a wooden plank surface as shown. This will help him to _____.



(A) Increase the frictional force
(B) Do work faster with more force
(C) Change the direction of force applied
(D) Do work faster and with less force

---

32. Preeti put her hand above the flame of the candle. She could not hold her hand above the flame for more than few seconds.
Whereas, when she brought her hands close to the sides of the flame, she felt the warmth of the flame and held her hands in that position for a longer time. Which of the following justifies this?



(A) The candle flame always burns downwards.
(B) The candle flame always burns upwards.
(C) The hot air rises up.
(D) The hot air spreads in all directions.

---

33. Gaurav and his friends are giving their friend an immediate first aid treatment as shown. They made him lie down with his legs raised and having head lower than the body. Their friend most likely got _____.



(A) Burned
(B) Insect bitten
(C) Fainted
(D) Electric shock

---

34. The person shown in the picture belongs to which service ?



(A) Judiciary service
(B) Medical service
(C) Military service
(D) Postal service

---

35. Which of the following is INCORRECTLY written?

(A) The chocolate weighs 20 grams.
(B) The capacity of water tank is 1 kilogram.
(C) The capacity of jug is 2 litres.
(D) The bag of flour weighs 10 kilograms.

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

SCIENCE OLYMPIAD FOUNDATION

Class 4

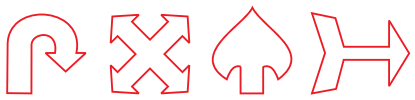
16th NSO

SET A

Year 2013

Copyright©2015. Science Olympiad Foundation (SOF)

1. In the given figures, what fraction of straight lines are vertical lines?



A. $\frac{2}{11}$ B. $\frac{1}{11}$ C. $\frac{3}{11}$ D. $\frac{5}{11}$

2. How many hundreds must be added to 9623 to make 91623?

A. 20 B. 820 C. 82 D. 8200

3. What is the missing numbers in the given multiplication?

$$\begin{array}{r} 3\ 5\ 8 \\ \times\ \boxed{?}\ 4 \\ \hline 1\ 4\ 3\ 2 \\ +2\ 5\ 0\ 6\ 0 \\ \hline 2\ 6\ 4\ 9\ 2 \end{array}$$

A. 6
B. 7
C. 8
D. 9

4. A prescription for medicine from a clinic is shown here.
In a week, how many tablets would Beena eat?

Garima's Clinic

Patient's name	:	Beena
Dosage	:	3 tablets to be taken 3 times daily
Instructions	:	Complete the course of the medicine

A. 81 B. 48
C. 63 D. 21

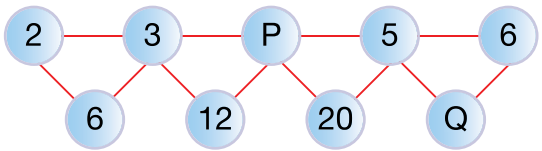
5. Which of the following has the smallest value?

A. 112 tens – 5 hundreds
B. 14 hundreds × 6
C. 86 hundreds – 2 thousands
D. 78 tens ÷ 3

6. Factors of first common multiple of 12 and 36 are _____.

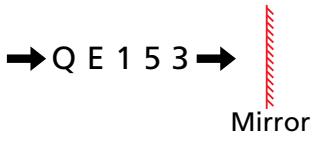
A. 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72
B. 2, 3, 4, 6, 8, 9, 12, 18, 24, 36, 72
C. 1, 2, 3, 4, 6, 8, 9, 12, 18, 24, 36
D. 1, 2, 3, 4, 6, 9, 12, 18, 36

7. Find the values of P and Q respectively in the given number pattern.



A. 5 and 28
B. 4 and 30
C. 3 and 30
D. 2 and 18

8. Which of the following options shows the correct mirror image of the given combination ?



A. → Ó E ɹ 2 3 →
B. ← Ɛ 2 ɹ Ǝ Ọ ←
C. ← Ɛ 5 ɹ Ǝ Ò ←
D. → Q E ɹ 2 3 ←

Space for Rough Work

Copyright©2015, Science Olympiad Foundation (SOF)
Copyright©2014. Science Olympiad Foundation (SOF)

9. The value of CDXCVIII – XC is same as

A. 408 B. 308
C. 208 D. 608

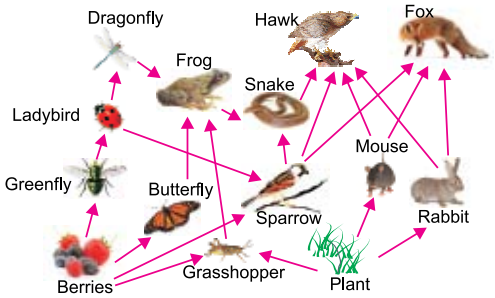
10. Which of the following shapes is embedded in the figure (X)?


Figure (X)

A. 
B. 
C. 
D. 

SCIENCE

11. How many food chains are there in the given food web?



A. 11
B. 12
C. 14
D. 15

12. Select the INCORRECT statement.

A. The weaver bird uses its beak like a needle to sew leaves and other materials to make a nest.
B. The penguin collects a few pebbles and stones to make a nest.
C. Eagle and vulture simply put a few sticks together to make a shallow nest.
D. The woodpecker pecks a tree trunk with its beak to make a hole for nest.

13. Read the given dialogues and select the correct option regarding the situation.

Garima	:	Oh God! Beena has fainted, come on immediately lie her down and keep her head lower than the body.
Priya	:	I think, we should put some ice pack on her head, she will be fine then.
Latika	:	Garima is right, that way blood supply will increase to her brain.
Megha	:	Do not crowd around her. Allow inflow of fresh air.

A. Priya and Megha are incorrect.
B. Garima is correct, Latika is incorrect.
C. Latika made the correct explanation of Garima's statement.
D. Only Megha is correct.

14. Select the correct match.

	Shape		Function		Teeth
a	Sharp and flat	1	Chew and grind	w	Molars
b	Pointed	2	Biting/cutting	x	Incisors
c	Broad	3	Tearing	y	Premolars
d	Broad	4	Grind	z	Canines

A. a-3-x, b-4-z, c-1-w, d-2-y
B. a-2- x, b-3-z, c-1-y, d-4-w
C. a-4- y, b-2-x, c-3-z, d-1-w
D. a-2- w, b-1-x, c-4-y, d-3-z

Space for Rough Work

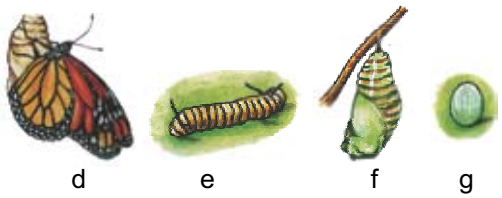
Copyright©2015. Science Olympiad Foundation (SOF)

15. Select the INCORRECT match.

	Vitamin		Its sources
A.	Vitamin C	–	Citrus fruits
B.	Vitamin A	–	Carrot
C.	Vitamin B	–	Sunlight
D.	Vitamin K	–	Spinach

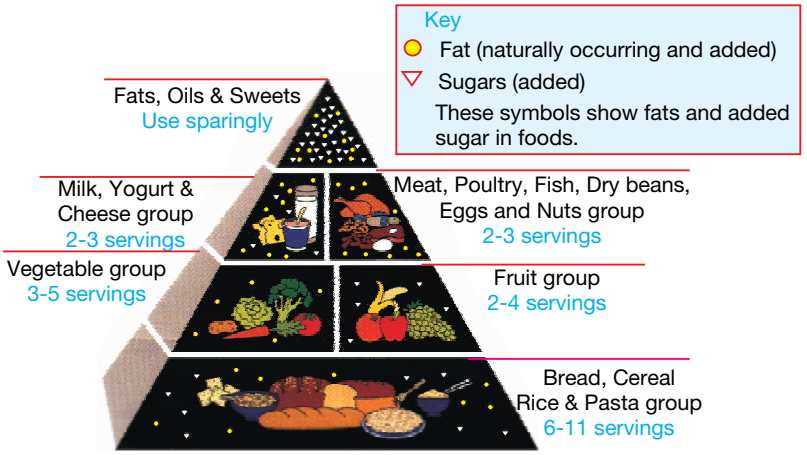
16. The diagram below shows the developmental stages of a butterfly arranged randomly. Select the stage of its life cycle during which it is (a) most active eater, and (b) least active.

	(a)	(b)
A.	d	g
B.	e	f
C.	d	e
D.	f	g



17. Study the given food guide pyramid and select the INCORRECT option regarding it.

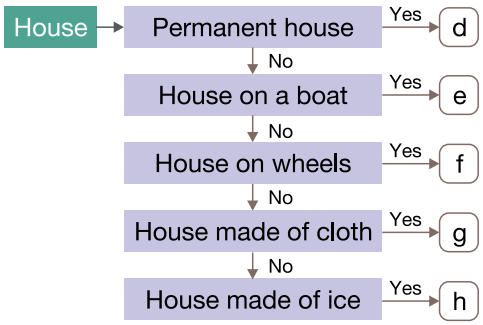
A. Cereals, vegetables and fruits should be in larger portion in our daily meals.
B. Cereals should be taken the most because it is body-building food.
C. Deep fried food, excessive sweets in food should be avoided as fat and sugar is required in small amounts in the body.



D. Dairy products such as milk, cheese, yoghurt are rich source of calcium, minerals and vitamins. Growing children should take them twice or thrice a day.

18. Study the given flow chart. Which of the marked ends d, e, f, g or h best represents caravan and igloo respectively?

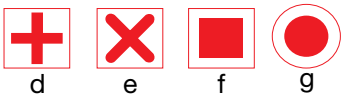
	Caravan	Igloo
A.	e	f
B.	f	h
C.	f	e
D.	g	h



Space for Rough Work

Copyright©2015. Science Olympiad Foundation (SOF)

19. Rahul is new to a town. Today is his first day in his school. After school he has to visit a doctor for routine medical checkup. Which of these symbols on map will help him to locate school and hospital respectively?



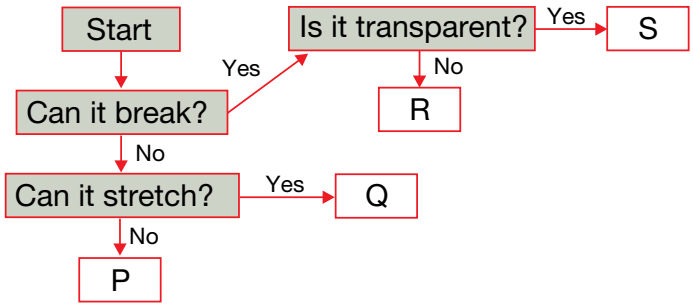
A. f and d B. g and e C. e and d D. f and e

---

20. Study the given flow chart and accordingly classify the following objects 'd', 'e', 'f' and 'g'.

A clay tile (d) | A piece of glass (e) | A piece of metal (f) | Rubber ring (g)

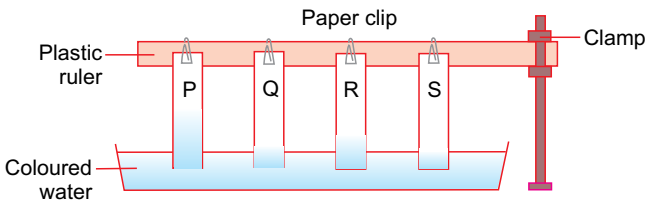
	P	Q	R	S
A.	d	e	f	g
B.	f	g	d	e
C.	g	f	e	d
D.	e	g	d	f



---

21. A company that makes diapers carried out an experiment to find out the speed at which different materials absorb water. The results are shown in the given diagram.

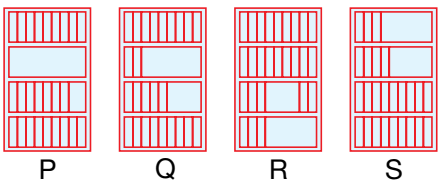
Which of the materials is most suitable to be used to make diapers?



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

---

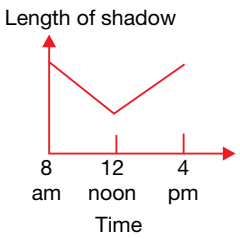
22. Study carefully the given diagrams showing arrangement of books on four different bookshelves. Which of these bookshelves is likely to topple over most easily?

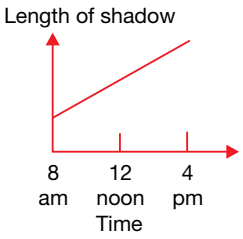


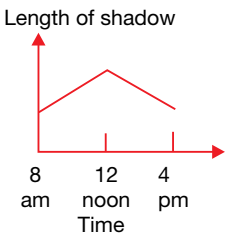
A. P B. Q
C. R D. S

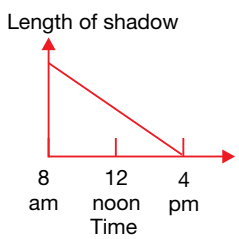
---

23. Which of the following shows the correct changes in the lengths of the shadow of a tree throughout the day?

A.


B.


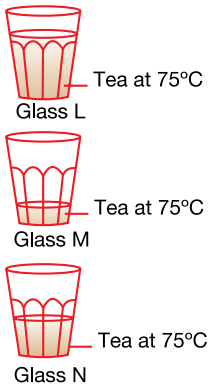
C.


D.


Space for Rough Work

Copyright©2015. Science Olympiad Foundation (SOF)

24. Study the three glasses of tea that are placed on the table.



Which of the following statements are true about the glasses of tea?

1. The tea in the three glasses have the same amount of heat.
2. The tea in the three glasses are of the same temperature.
3. There is more heat in Glass L than in Glass M.
4. There is less heat in Glass N than in Glass M.

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

25. _____ carry people and goods across lakes and river. _____ can carry hundreds of passengers for long distances. A _____ carries passengers across river or a short sea route. _____ carry soldiers and scientists underwater.
Select the correct sequence of words to complete the above paragraph.

A. Boats, Submarines, Ferry, Ships B. Ships, Ferries, Ship, Boats
C. Ferries, Boats Submarine, Ships D. Boats, Ships, Ferry, Submarines

26. When raindrops pass through a very cold region of the atmosphere, they freeze and become _____.

A. Frost B. Snow C. Dew D. Hail

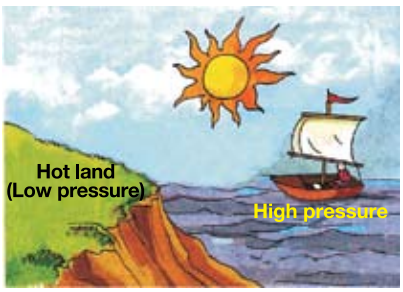
27. Which of the following is a correct match?

A. Mule – Hilly areas B. Elephant – Forest areas
C. Camel – Desert areas D. All of these

28. Supriya is observing different phases of the Moon on different nights. On Oct 10th, she observed . What would she most likely observe on Oct 13th and Oct 20th?

	Oct 13th	Oct 20th		Oct 13th	Oct 20th
A.			B.		
C.			D.		

29. The given figure shows high pressure and low pressure areas. Select the correct option regarding it.



A. Winds blow from areas of high pressure to area of low pressure.
B. Cool air blows from the sea to the land.
C. Sea breeze blows from land to the sea.
D. Both A and B.

Space for Rough Work

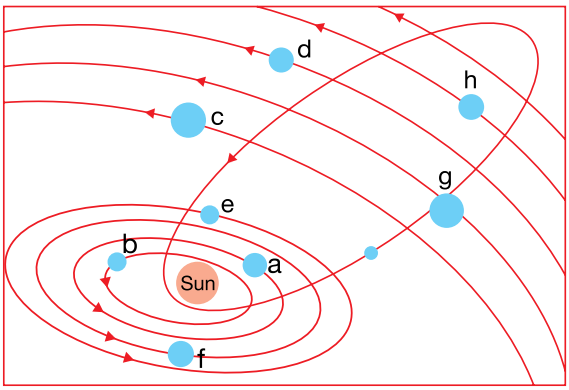
Copyright©2015. Science Olympiad Foundation (SOF)

30. _____, _____ and _____ are the sources of energy which will never finish. Select the correct sequence of words to fill the given blanks.

A. Oil, coal and wood
B. Petrol, diesel and LPG
C. Sun, wind and water
D. Sun, fossil fuels and wind

ACHIEVERS SECTION

31. Study the given diagram showing part of the solar system and answer the questions that follow.



1. Which of these planets are made up of rocks and iron?
2. Which of these planets are mainly made up of frozen gases?

	(1)	(2)
A.	c, d, g, h	a, b, e, f
B.	c, f, e, g	a, b, d, h
C.	a, b, d, h	c, f, e, g
D.	a, b, e, f	c, d, g, h

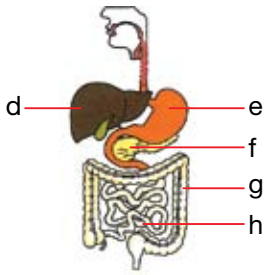
32. Prerna has 4 containers of the same size and thickness. They are made of different materials such as plastic, steel, styrofoam and glass. She poured the same amount of water at 90°C and placed a thermometer into each container. All the containers were placed in a room with the same conditions.
After 20 minutes, which of the following could Prerna observe?

1. All the thermometers will show the same temperature.
2. All the thermometers will show different temperature.
3. The thermometer in the steel container will show the least drop in temperature.
4. The thermometer in the styrofoam cup will show the highest temperature.

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

33. Refer the given labelled diagram of digestive system and answer the questions that follow.

1. In which of the labelled parts the digestion of the food is completed?
2. Which of these labelled parts send some digestive juices into the small intestine?
3. The blood vessels in which of these labelled parts absorb the extra water?

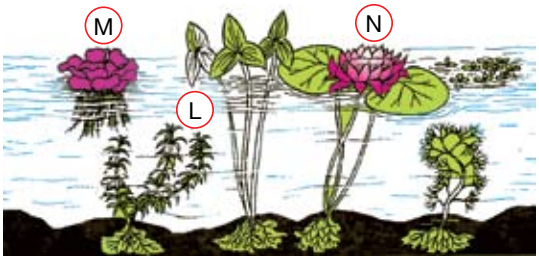


	(1)	(2)	(3)
A.	e	e and f	h
B.	h	d and f	g
C.	g	d and h	e
D.	g	e and f	d

Space for Rough Work

Copyright©2015. Science Olympiad Foundation (SOF)

34. Refer the given figure showing some aquatic plants.

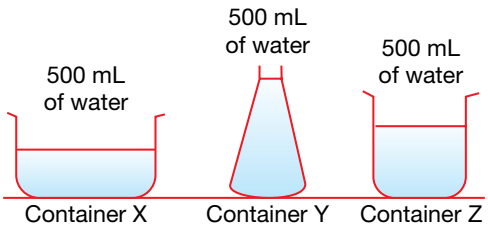


Select the correct option regarding the labelled plants 'L', 'M' and 'N'.

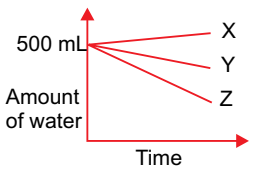
A. Plant 'L' - Their leaves are narrow and thin so that they can bend in flowing water.
B. Plant 'N' - The stomata are on the top of the leaf surface so that the water does not block them.
C. Plant 'M' - Their leaves are spongy as they have air in them.
D. All of these.

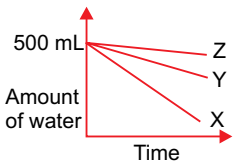
---

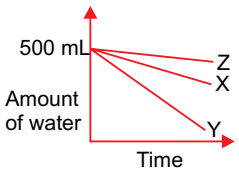
35. Beena poured 500 mL of water into 3 different containers as shown in the figure. She kept all the containers near a window.

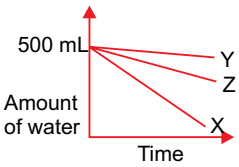


Beena checked the amount of water in the 3 containers at regular intervals. Choose the graph that could best illustrate the loss of water after some time in the three containers.

A. 

B. 

C. 

D. 

Space for Rough Work

Copyright©2015. Science Olympiad Foundation (SOF)

SCIENCE OLYMPIAD FOUNDATION

Class 4

16th NSO

SET B

Year 2013

Copyright©2015. Science Olympiad Foundation (SOF)

1. How many numbers between 1 and 20 are common multiples of 2 and 3?

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

2. The product of 214 and a number is X. Taking 49 away from X gives 1449. Find the number.

   A. 7 B. 9 C. 1498 D. 1640

3. Latika decorated a square birthday cake, with sides measuring 20 cm, by placing strawberries every 5 cm around the edge. How many strawberries did she use?

   A. 16 B. 17 C. 18 D. 19

4. Find the value of P + Q − R + S.

   A. 4

   B. 1

   C. 5

   D. 6

$$\begin{array}{r|l} 12 & 28992 \\ -24 & \\ \hline 49 & \\ -4R & \\ \hline 19 & \\ -12 & \\ \hline 72 & \\ -72 & \\ \hline 0 & \end{array} \quad \text{P 4 Q S}$$

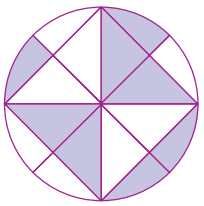
5. Select the CORRECT match.

   A. 2 hrs 20 mins after 9:40 pm — 8:20 am
   B. 50 mins before 9:10 am — 10:25 am
   C. 14 hrs after 7:30 am — 9:30 pm
   D. 12 hrs before 10:30 pm — 5:00 am

6. What fraction of the figure is shaded?

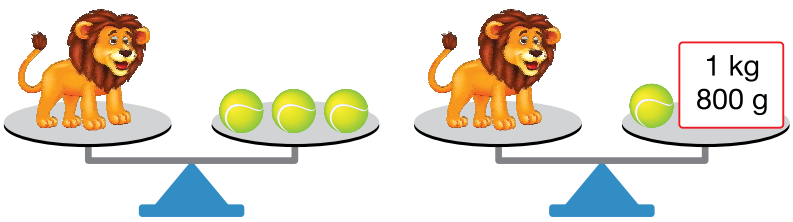
   A. $\frac{1}{2}$ B. $\frac{1}{4}$

   C. $\frac{3}{8}$ D. $\frac{11}{16}$



7. What is the weight of the toy lion?

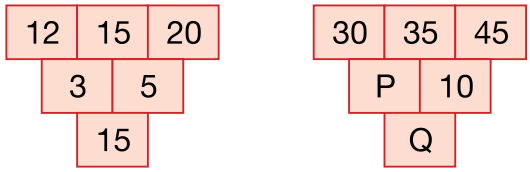
   A. 2 kg 700 g
   B. 2 kg 100 g
   C. 2 kg 10 g
   D. 2 kg 600 g



Space for Rough Work

Copyright©2015. Science Olympiad Foundation (SOF)

8. Find the value of P & Q in the given pattern.



A. 5, 50
B. 3, 30
C. 10, 45
D. 5, 10

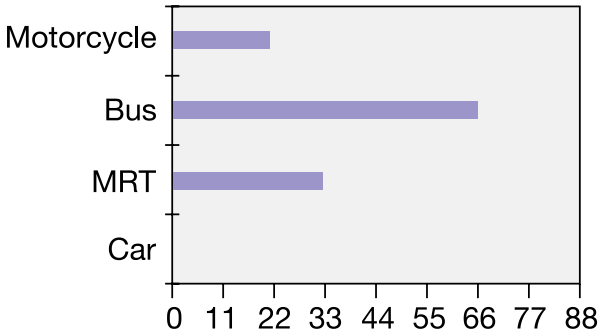
---

9. Garima is facing north now. She makes a $\frac{1}{2}$-turn in anticlockwise direction and makes another $\frac{3}{4}$-turn in the clockwise direction. In which direction will she be facing?

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

---

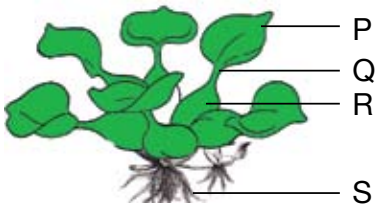
10. The graph shows how 209 people travel to work. Express the number of people who travel by motorcycle as a fraction of the number of people who travel by car.



A. $\frac{1}{4}$ B. $\frac{1}{2}$
C. $\frac{2}{3}$ D. $\frac{1}{6}$

SCIENCE

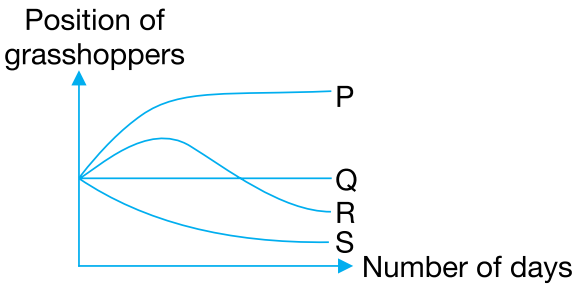
11. Which of the labelled parts of water hyacinth is adapted for floating?



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

---

12. Which one of the following graphs represents the population of grasshoppers in a garden after the arrival of a *bulbul*?



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

Space for Rough Work

Copyright©2015. Science Olympiad Foundation (SOF)

13. The given diagram shows a screwdriver being used as simple machines (a and b). Identify the simple machines 'a' and 'b'.

	a	b
A.	Pulley	Lever
B.	Wheel and axle	Lever
C.	Lever	Wheel and axle
D.	Wheel and axle	Pulley



Diagram a



Diagram b

DIRECTION (Q. 14 and 15) : Read the given passage and answer the questions that follow:

A female cockroach lays its eggs in case, in a dark and safe place. Each case has only one egg. Each egg hatches into a young cockroach called caterpillar. It looks like an adult cockroach but is smaller and does not have wings. The young cockroach sheds skin several times before it becomes an adult. This shedding of skin is called 'X'.

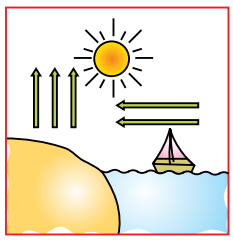
14. What is INCORRECT in the above passage?

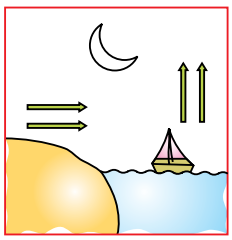
A. A female cockroach lays its eggs in case.
B. Each case has only one egg.
C. Each egg hatches into a young cockroach called caterpillar.
D. Both B and C.

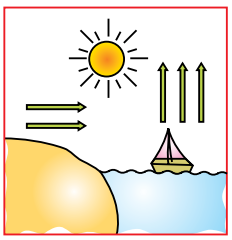
15. What is 'X'?

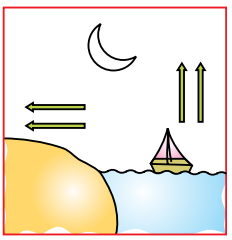
A. Metamorphosis B. Hatching C. Moulting D. Incubation

16. Which of these illustrates sea breeze?

A. 

B. 

C. 

D. 

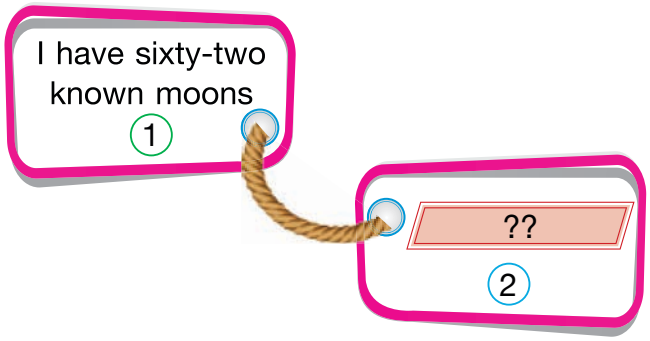
17. Which of the following statements is NOT true?

A. The skeletal system is by itself responsible for movement.
B. The respiratory system helps us to get the air we need for survival.
C. The circulatory system helps to carry digested food and water to all parts of the body.
D. The digestive system helps to convert the food we eat into a form that is easily absorbed.

Space for Rough Work

Copyright©2015. Science Olympiad Foundation (SOF)

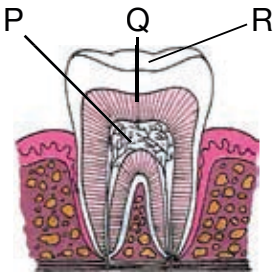
18. The diagram shows flashcards having description of a planet of solar system. Which of the following would complete the second flashcard?



A. I am called the 'Morning Star'.
B. Life is possible only on me.
C. I spin faster than any other planet.
D. I am farthest from the Sun.

---

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



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

---

20. Roy wanted to make a list of actions that shows friction produces heat. Which of the following could he include in his list?

(a) Rubbing hands together
(b) Scratching a match stick against the box
(c) Sawing wood
(d) Drilling a hole into metal sheet
(e) Rubbing off some pencil marks with an eraser

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

---

21. Some of the food sources are given in the box.

1. Rice	2. Wheat	3. Sugar	4. Fruits
5. Vegetables	6. Milk	7. Potato	8. Butter
9. Eggs	10. Cheese	11. Pulses	12. Oil

Which list best classifies the given food sources into four components of food : Carbohydrates (C), Fats (F), Proteins (P), Vitamins and Minerals (V & M)

	C	F	P	V & M
A.	1, 2, 3, 7	8, 10, 12	6, 9, 11	4, 5, 6, 9
B.	1, 2, 3, 7	8, 9, 12	4, 6, 10	2, 8, 9
C.	4, 5, 6, 9	1, 2, 3, 7	8, 10, 12	6, 9, 11
D.	8, 9, 12	4, 6, 10	2, 8, 9	1, 2, 3, 7

Space for Rough Work

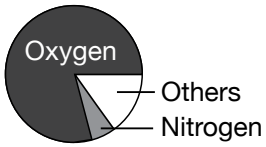
Copyright©2015, Science Olympiad Foundation (SOF)
Copyright©2014. Science Olympiad Foundation (SOF)

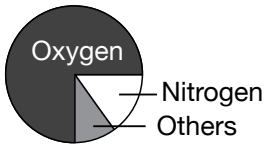
22. When clouds become very cold, water vapour condenses to form ice crystals instead of water drops. This falls down as _____ .

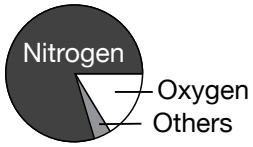
A. Hail B. Dew C. Snow D. Fog

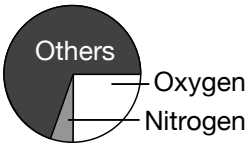
---

23. The Earth's atmosphere is made up of various gases. Which of the following best describes this composition of gases?

A. 

B. 

C. 

D. 

---

24. Read the given passage and identify birds *X* and *Y*.

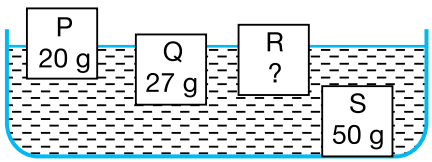
	X	***Y***
A.	Tern	Penguin
B.	*Koel*	Crow
C.	Woodpecker	Tailor-bird
D.	*Koel*	*Bulbul*

X is a very lazy and clever bird. She does not build a nest. When she is ready to lay eggs, she goes to the *Y*'s nest and breaks a few of its eggs to make space for her own eggs. Mother *Y* hatches *X* eggs and feed the nestlings of *X*.

---

25. Four objects P, Q, R and S of the same shape but different weights, are put into a tank of water. The given diagram shows what happens when they are in water. Which of the following is most likely the weight of object R?

A. 60
B. 35
C. 25
D. 19



---

26. Which of the following is INCORRECT?

A. An ambulance carries sick or injured people to hospital.
B. Mules and horses are used in hilly areas.
C. Camels are used in forest and elephants are used in desert.
D. A postal van carries letters and parcels from one post office to another.

---

27. Which part of the eagle helps it to hunt its prey?

P. Its sharp eyesight
Q. Its talons
R. Its sharp beak
S. Its feathers that help keep it warm

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

Space for Rough Work

Copyright©2015. Science Olympiad Foundation (SOF)

28. Which of these requires the professional to be educationally well qualified?

A.  B.  C.  D. 

29. Select the odd one among the given leaves, based upon their uses in food items.

A.  Curry

B.  Mint

C.  Neem

D.  Coriander

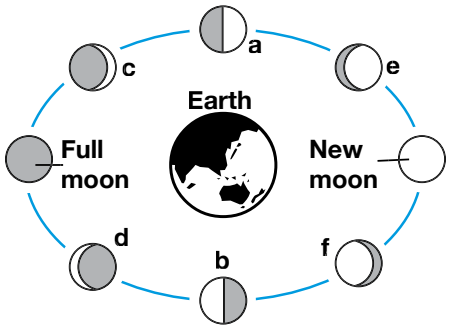
30. Your baby sister is sleeping in your room. You are reading a book at your study table. Your baby sister wakes up and lets out a cry. Which of your senses help you to know that your baby sister is crying ?

A. Sense of touch and sight
B. Sense of smell and touch
C. Sense of hearing and touch
D. Sense of sight and hearing

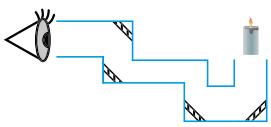
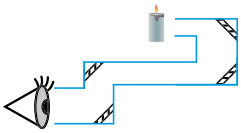
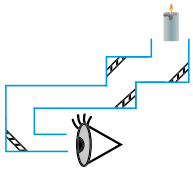
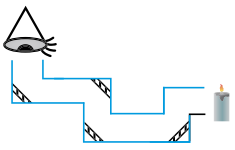
ACHIEVERS SECTION

31. Study the given diagram and select the correct option regarding it.

A. In the diagram, New Moon and Full Moon are incorrectly labelled. They should rather be interchanged.
B. Phases of Moon 'c' and 'd' show Gibbous Moon and 'e' and 'f' show Crescent Moon.
C. 'a' and 'b' are Half Moon and the time lag between the two is of a fortnight.
D. Both A and C



32. Which of the following would allow you to see the candle at the end of the periscope?

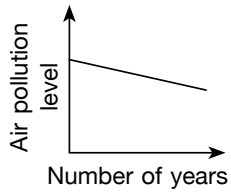
(i)  (ii)  (iii)  (iv) 

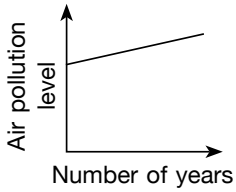
A. (i) only B. (ii) only C. (ii) and (iv) D. (iii) and (iv)

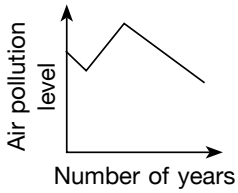
Space for Rough Work

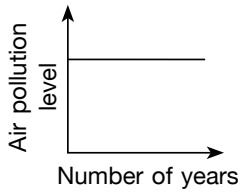
Copyright©2015, Science Olympiad Foundation (SOF)
Copyright©2014. Science Olympiad Foundation (SOF)

33. Which of the following graphs shows that deforestation has taken place over a period of time?

A. 

B. 

C. 

D. 

34. Observe the given figure and read the following passage regarding it.
As Sushil pushes the carton up the ramp, 'P' energy from the food that Sushil has eaten changes into 'Q' energy of the carton. When the carton reaches the deck of the lorry, this energy is stored in the carton as 'R' energy. However, some of the energy from Sushil is changed into 'S' and 'T'. Select the correct statements regarding energies P, Q, R, S and T.



Statements :

(i) S opposes motion and produces heat
(ii) T makes us feel warm
(iii) P energy is ultimately derived from solar energy
(iv) The faster an object moves, the greater is R energy
(v) The higher the object is, the more Q it has.

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

35. Which of the following statements are false?

P. A change in state can result in a change in volume.
Q. A change in state can result in a change in substance.
R. A change in state can result in a change in weight.
S. A change in state can result in a change in mass.

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

Space for Rough Work

Copyright©2015. Science Olympiad Foundation (SOF)

SCIENCE OLYMPIAD FOUNDATION

Class 4

17th NSO

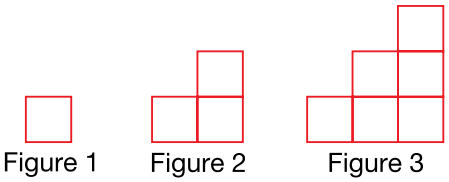
SET A

Year 2014

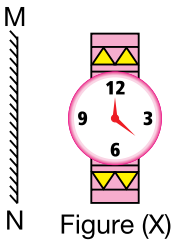
Copyright©2015. Science Olympiad Foundation (SOF)

1. The number of unit squares in Figure 10 in the given figure pattern is _____.

   A. 66
   B. 45
   C. 55
   D. 36



2. Which of the following is the correct mirror image of Figure (X), if mirror is placed along MN?



A. 

B. 

C. 

D. 

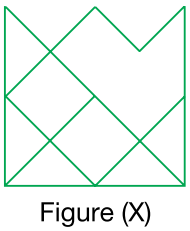
3. Which of the following options is NOT embedded in the given Figure (X)?

A. 

B. 

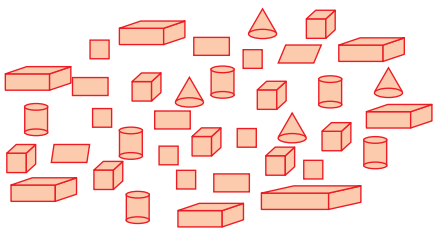
C. 

D. 


Figure (X)

4. There are _____ number of cubes in the given figure.

   A. 8
   B. 10
   C. 12
   D. 15



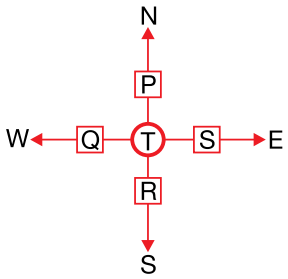
5. In a certain code language, if BOARD is written as $3%#6 and ROPE is written as #35@, then PEAR will be written as _____.

   A. 5%6# B. 5^%# C. #6%5 D. 5@%#

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

6. If P and Q as well as R and S interchange their positions, then what is the position of T with respect to P?



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

---

7. Garima goes to office everyday in July 20XX. If each Sunday and all multiples of 5 are holidays, then how many days she will go to office?

July 20XX

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

A. 21
B. 23
C. 22
D. 24

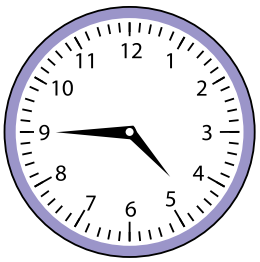
---

8. The Vanilla cake is larger than the Coconut cake. The Chocolate cake is larger than the Vanilla cake but smaller than the Mango cake. Which of the following is the correct order of cakes from the largest to the smallest?

A. Vanilla > Coconut > Chocolate > Mango
B. Mango > Chocolate > Coconut > Vanilla
C. Mango > Vanilla > Chocolate > Coconut
D. Mango > Chocolate > Vanilla > Coconut

---

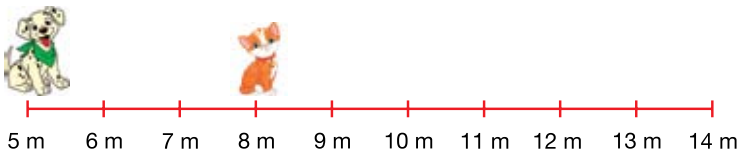
9. If the given clock is 45 minutes slow, then the correct time after half an hour will be _____ .



A. 6 O'clock
B. 6 : 30
C. 7 O'clock
D. 5 : 30

---

10. A dog is chasing a cat as shown here.



- The cat starts from 8 m and jumps 3 m every time.
- The dog starts from 5 m and jumps 5 m every time.

If they both start at the same time, in which jump will the dog overtake the cat?

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

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

11. Select the correct option regarding the given food items.

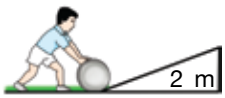


A. A person who is recovering from illness should take a lot of 2.
B. Overeating of 1 regularly may lead to obesity.
C. 3 gives us lots of energy, when hungry.
D. All of these

12. Four boys rolled oil drums of the same weight and size up the ramps of different heights. Which amongst them required the greatest effort?

A. 

B. 

C. 

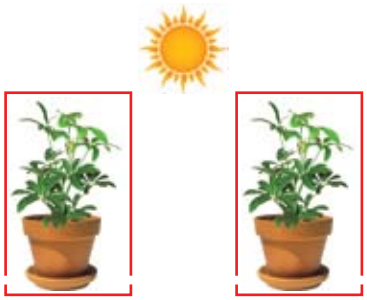
D. 

13. Animal 'X' has the following characteristic features:
- Long eyelashes and narrow nostrils
- Thick rubbery lips
- Wide padded feet
- Thick leathery patches on knee

Which of these animals is 'X'?

A. 
B. 
C. 
D. 

14. Advika took two healthy green plants of equal size, put them in two boxes, P and Q, made of different materials and placed them under the Sun, as shown in the figure. She watered the plants daily, but the plant in set-up P died, while the plant in set-up Q grew well. Which of the following best describes this?



A. Plant in the set-up P could not get air.
B. Box in the set-up P is made up of clear glass.
C. Plant in the set-up Q could not get sunlight.
D. Box in the set-up Q is made up of clear glass.

15. Mayank wants to separate a mixture of salt-water-sand. Which of these separation methods should he use to separate all the three components?

A. Filtration, Distillation
B. Filtration, Evaporation
C. Flotation, Sedimentation
D. Evaporation, Decantation

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

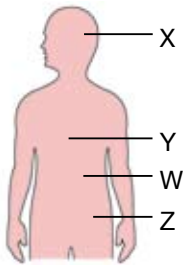
16. The egg of cockroach hatches into a young cockroach, known as a nymph. It does not have wings and undergoes moulting several times because moulting allows it to grow in size to become an adult cockroach. Refer to the given table of the growth of a cockroach nymph and answer the question that follows:

Week	2	4	6	8	10	12	14	16
Length (cm)	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.0

How many times has the nymph moulted?

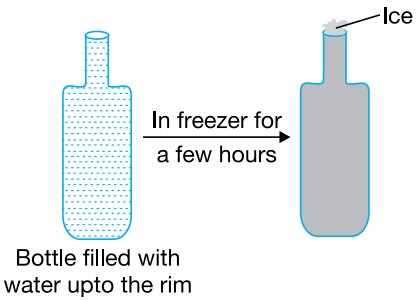
A. 5 B. 6 C. 7 D. 8

17. Refer to the given figure which points out the location of some organs in our body. Which of the following options is INCORRECT regarding this?



A. The organ located at X helps us to respond to our surroundings.
B. The organ located at Y supplies nutrients etc. to all other organs.
C. The organ located at W throws out the undigested food out of the body.
D. The organ located at Z helps our body to get rid of wastes, and is a part of excretory system.

18. Ajay filled a bottle upto the rim with water, and placed it in the freezer. What he saw after a few hours is shown in the figure given here. What does it show?



A. Freezing decreases mass of water.
B. Freezing compresses water.
C. Freezing increases volume of water.
D. Freezing increases mass of water.

19. Why are the days on different planets of different time period?

A. The planets revolve around the Sun in different orbits.
B. The planets rotate on their axis at different speeds.
C. The planets revolve around the Sun at different speeds.
D. The planets are at different distances from the Sun.

20. _____ is the temperature at which a gaseous matter changes into a liquid.

A. Freezing point B. Condensation point C. Boiling point D. Melting point

21. Four means of transport are hidden in the given word grid. Unscramble the given words and select the one which cannot be found in the grid.

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

A. ICCBLEY B. LRIGDE
C. RNATI D. RCKUT

SPACE FOR ROUGH WORK

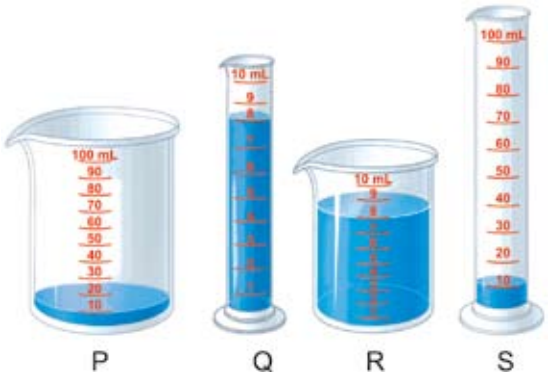
Copyright©2015. Science Olympiad Foundation (SOF)

22. Meetu saw a bird walking and scratching the soil for worms and seeds. Which kind of foot would the bird have?

A.  B.  C.  D. 

---

23. Arrange the following containers in order of the amount of water contained in them and select the correct option.



A. R > Q > P > S
B. R < Q < P < S
C. R = Q > P = S
D. R = Q < P = S

---

24. _____ is an imaginary line that runs from North Pole to the South Pole. It is tilted at an angle of 23.5 degrees.

A. Equator B. Axis C. Orbit D. None of these

---

25. Which of these can explain the reason for mud houses being common in desert areas like Rajasthan?

A. Mud absorbs heat and keeps the house cool.
B. Rainfall is very scarce in Rajasthan.
C. The roofs are made of thorny bushes.
D. Both A and B

---

26. A young plant wilts when it is dug up, even if it is later re-planted at the same place. What can be the reason for this?

A. The leaves lose more water when the plant is replanted.
B. The roots cannot take up mineral salts because digging of soil decreases mineral content.
C. The stem cannot transport water because digging always causes it to break.
D. The surface area of the roots gets reduced on digging up.

---

27. Which of the following shows the correct path for transfer of energy?

A. Plant → Lion → Goat → Tiger B. Wheat → Bird → Elephant → Lion
C. Grass → Grasshopper → Chicken → Man D. Corn → Chicken → Snake → Elephant

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

28. Ritesh wants to make a list of actions that show that friction produces heat. Which of the following actions can he include in his list?
    (i) Rubbing hands together
    (ii) Scratching a match stick against the match box
    (iii) Sawing wood
    (iv) Drilling a hole into metal sheet
    (v) Rubbing off some pencil marks with an eraser

    A. (i) and (iv) B. (i), (ii) and (v) C. (i), (ii), (iii) and (v) D. All of these

29. Which of the following processes increases the amount of water vapour in the atmosphere?

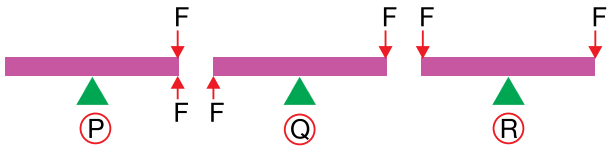
    A. Evaporation B. Precipitation C. Percolation D. Condensation

30. The food prepared by the leaves is used by the plants for their daily activities. The excess food gets stored as starch in _____.

    A. Roots B. Stems C. Fruits D. All of these

ACHIEVERS SECTION

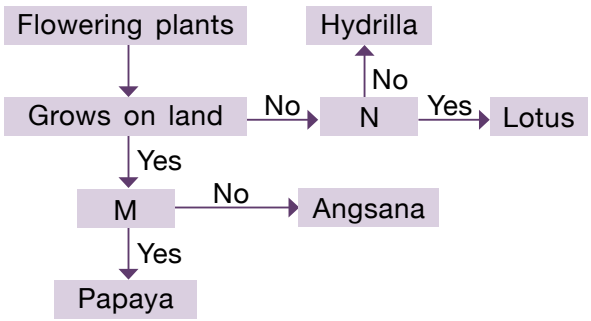
31. Three uniform planks, P, Q and R are balanced on pivots. Two equal forces, each of value F, act on each plank but in different manners as shown in the figure.



    Which of the following options is correct regarding this?

    A. Plank P will either bend or break.
    B. Plank Q will show no movement at all.
    C. Plank R will be pulled up the pivot.
    D. Plank P will show no movement at all.

32. The given flow chart can be used to distinguish between some types of flowering plants.
    What do M and N represent in the flow chart?

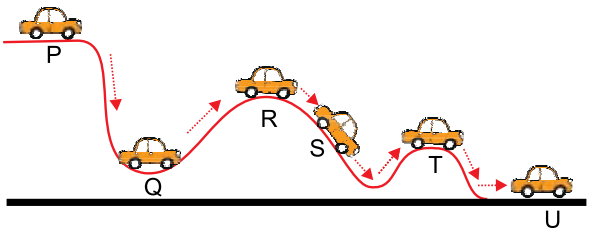


	M	N
A.	Has big flowers	Has long stem
B.	Has edible fruits	Has waxy leaves
C.	Has woody stem	Has spores
D.	Has edible fruits	Floats inside water

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

33. Kunal pushed down a toy car from top of a racing track as shown in the diagram. The arrows show the direction of movement of the car.



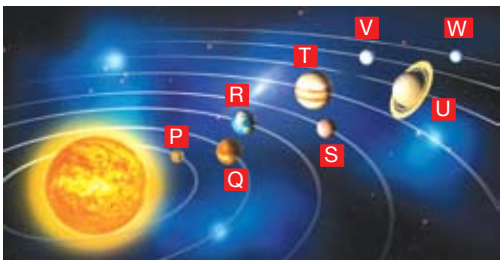
Which of the following statements are correct?

1. The car has the most gravitational potential energy at P.
2. The car has the most kinetic energy at P.
3. The car used up all its energy at U.
4. The car has the least kinetic energy at R.
5. The car at U stops, as its gravitational potential energy has been converted to kinetic, heat and sound energy.

A. 1 and 3 B. 1 and 5 C. 2, 3 and 4 D. 2, 4 and 5

---

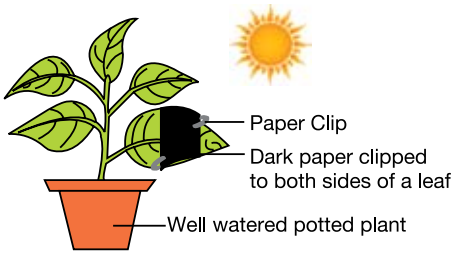
34. Refer to the given picture which shows our solar system and select the correct option.



A. Q is known as the evening star and P is the hottest planet.
B. R is a rocky planet while S is made up of gases.
C. T is the third largest planet and W has no moons.
D. P is a planet with no moons while Q is the hottest planet.

---

35. Shruti sets up an experiment, as shown in the figure. What is she trying to find out?



A. Light is necessary for photosynthesis.
B. Oxygen is evolved during photosynthesis.
C. Carbon dioxide is necessary for photosynthesis.
D. Chlorophyll is necessary for photosynthesis.

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

SCIENCE OLYMPIAD FOUNDATION

Class 4

17th NSO

SET B

Year 2014

Copyright©2015. Science Olympiad Foundation (SOF)

1. Select the correct mirror image of Figure (X).

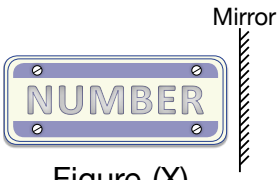


Figure (X)

A. 
B. 
C. 
D. 

---

2. How many triangles are there in Figure (X)?

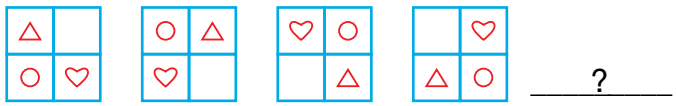


Figure (X)

A. 48
B. 36
C. 42
D. None of these

---

3. Find the next figure in the given figure pattern.



A. 
B. 
C. 
D. 

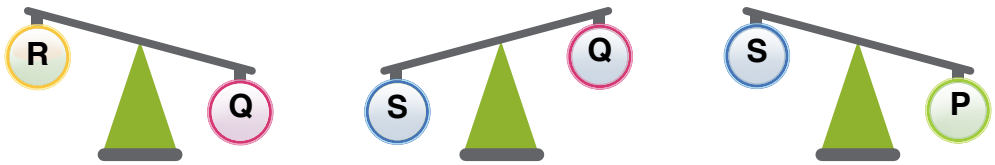
---

4. Neha is standing in a row of children. If she is 13th from the right end and 19th from the left end, then how many children are standing in the row?

A. 31 B. 29 C. 28 D. 27

---

5. Select the correct order from the heaviest to the lightest.

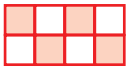


A. S > P > R > Q B. P > Q > R > S C. P > S > Q > R D. R > Q > S > P

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

6. Select the correct match.

	Figure	Number of lines of symmetry
A.		4
B.		4
C.		1
D.		2

7. Which of the following options will complete the pattern in Figure (X)?



Figure (X)

A. 
B. 
C. 
D. 

8. How many letters appear the same when rotated by $\frac{1}{2}$ turn?

A. 7
B. 6
C. 5
D. 4

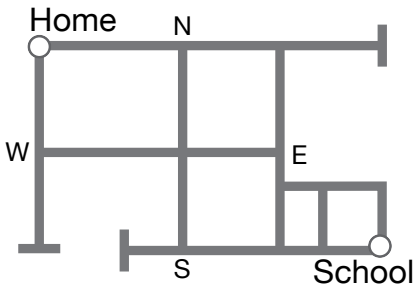
A B C D E F G H I J L K M
N O P Q R S T U V W X Y Z

9. _____ will replace the question mark in the given number pattern, if a certain rule is followed in the figures.

4	7	8	16	?	18
9	12	15	23	19	15

A. 22
B. 20
C. 18
D. 15

10. In how many ways can Garima travel from Home to School, if moving North and West are not permitted?



A. 0
B. 7
C. 11
D. None of these

SPACE FOR ROUGH WORK

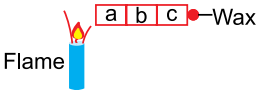
Copyright©2015. Science Olympiad Foundation (SOF)

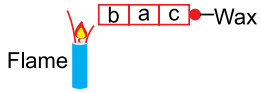
11. Which of the following can cause a sharp decrease in the size of a population?

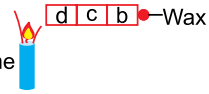
1. Famine
2. Disease
3. Drought
4. Introduction of new prey
5. Introduction of new predator

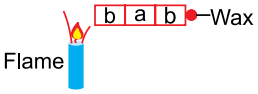
A. 1, 2 and 3 B. 1, 2, 3 and 4 C. 1, 2, 3 and 5 D. 1, 2, 3, 4 and 5

12. The descending order of heat conducting property of four metals a, b, c and d is a > b > c > d.
An experiment was conducted to find out how these different metals, when combined, will conduct heat. A small ball of candle wax was placed on one end and a flame near the other end. The set-ups are shown below. In which set-up will the wax drop off first?

A. 

B. 

C. 

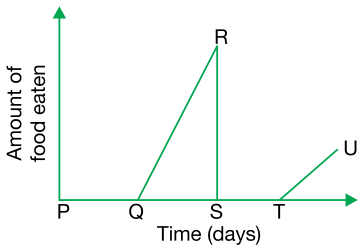
D. 

13. Achin wanted to dig for earthworms in the garden. One hot afternoon, he got a small spade and dug deep into the ground before he found one earthworm. That night it rained heavily. Achin tried to look for earthworms again the next afternoon and this time he found more without having to dig very deep. This shows that earthworms prefer what kind of conditions in its habitat?

1. Dry conditions 2. Cool conditions 3. Moist conditions 4. Warm conditions

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

14. Study the given graph carefully.
The line QR shows the _____ stage of the mosquito.



A. Egg
B. Larval
C. Pupal
D. Adult

15. Which of these animals is described in the given box?

- It lays eggs.
- It possesses lungs.
- It has scaly skin.

A. Lizard B. Pigeon
C. Frog D. Moth

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

A. Stems B. Leaves C. Roots D. Flowers

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

17. Water boils at _____ and freezes at _____.

A. 10°C, 100°C B. 100°C, 0°C C. 36.7°C, 0°C D. 100°C, 26°C

18. Amongst the given birds, which one has climbing claws with two toes in the front and two behind?

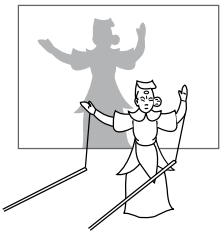
A.  B.  C.  D. 

19. Refer the given picture and select the correct option. Savitri is a nomad. To earn bread, she works as a helper in three homes which are on different floors. She lives in 'a' and works in 'b'. Which of the following options correctly identifies 'a' and 'b' in the figure?



A. a-3, b-1 B. a-2, b-1 C. a-3, b-2 D. a-2, b-3

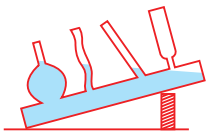
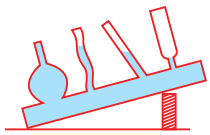
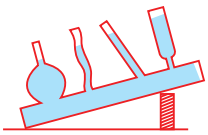
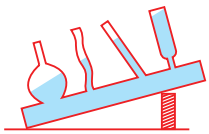
20. A shadow puppet is put between a light source and a screen as shown in the picture.
What will happen to the size of the shadow when the puppet moves :
X : nearer to the screen? Y : nearer to the light source?



	X	Y		X	Y
A.	Increases	Decreases	B.	Decreases	Increases
C.	Decreases	Decreases	D.	Increases	Increases

21. Shashank filled a communicating vessel with water as shown in the picture. Then he tilted the vessel to left by putting a block under its right end. Which of the following options is the best illustration to show the water level in the vessel?



A.  B.  C.  D. 

22. X is a slow means of transport which serves special purposes and is particularly useful for farmers. Which of these can be X?

A.  B.  C.  D. 

23. Refer to the given figure. Which of the following cannot be X?



A. Oxygen B. Carbon dioxide
C. Water D. None of these

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

24. Which of the following statements is correct?

A. A volcano is an opening on the Earth surface which leads to its core.
B. Gases and molten rocks called lava escape through the opening when volcano erupts.
C. All volcanoes continuously release smoke and lava.
D. All of these

---

25. Which of the following statements hold true regarding the given plants X and Y?


X Y

1. Plant X depends partly on animals for food but can also make its own food while plant Y cannot make its own food.
2. Plant X has chlorophyll while plant Y does not contain chlorophyll and is non-green.
3. In plant X, food is prepared by the green stem, whereas plant Y obtains its food from dead and decaying plants and animals.
4. Plant X and plant Y have patches of green colour. Only green part of their leaves performs photosynthesis.

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

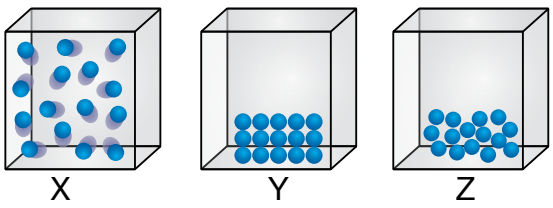
---

26. The girl 'a' is putting more efforts to pull the sack bag as compared to the girl 'b'. Girl 'a' has to work against a force which also _____.

A. Changes the direction of a moving object
B. Causes all objects to fall to the ground
C. Prevents us from slipping when we walk
D. Makes a stationery object to move



Direction : Refer to the given diagram and answer questions 27 and 28.


X Y Z

27. Which of the following can be X, Y and Z?

	X	Y	Z
A.	Oxygen	Milk	Paper
B.	Camphor	Ice	Coconut oil
C.	Perfume	Camphor	Mustard oil
D.	Air	Ketchup	Rubber

28. Select the correct option regarding the substances you have identified as X, Y and Z.

A. Y can be directly changed into gaseous state without melting.
B. X can be changed into liquid state without heating.
C. Z will solidify at room temperature in winter.
D. Both A and B

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

29. Which of the following statements does NOT hold true about the first aid given to an injured person?

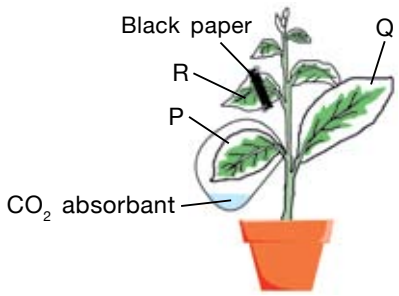
A. If a person is badly hurt, make the person lie down with the wounded part slightly elevated.
B. Apply butter or oil on the burnt area after pricking the blisters on it.
C. If a person faints, then immediately make him lie down with his head lower than the body.
D. In case of a minor burn, dip the burnt area in cold water or put ice pack on it.

30. Gopal learned that the planet Jupiter has a mass that is about 318 times that of the Earth and that Mars has about 1/10 the mass of the Earth. Using this information, which of the following conclusions is INCORRECT about Mars, Jupiter and the Earth?

A. Jupiter has a gravitational force larger than that of Mars.
B. Mars has a gravitational force larger than that of the Earth.
C. Jupiter has a gravitational force larger than that of the Earth.
D. Earth has a gravitational force larger than that of the Mars.

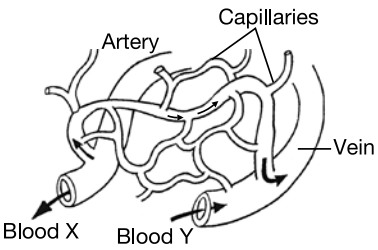
ACHIEVERS SECTION

31. Advika took a croton plant with shaded leaves and set up an experiment as shown here. After that she kept the plant in darkness for a few hours and then placed it in sunlight. After 6 hours, she performed iodine test on plucked leaves P, Q and R. Which of the following is the possible outcome?



A.  -Leaf Q
B.  -Leaf Q
C.  - Leaf R
D.  -Leaf P

32. Refer to the given figure of different blood vessels. The arrows show the direction of the flow of blood. Which one of the following correctly describes about blood X and blood Y?

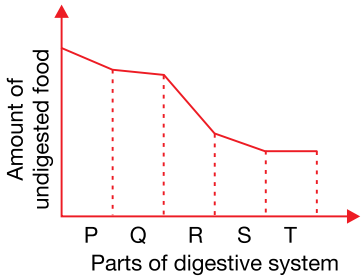


	Blood X	**Blood Y**
A.	Rich in oxygen and nutrients	Rich in carbon dioxide and waste materials
B.	Rich in carbon dioxide and waste materials	Rich in carbon dioxide and waste materials
C.	Rich in oxygen and nutrients	Rich in oxygen and nutrients
D.	Rich in carbon dioxide and waste materials	Rich in oxygen and nutrients

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

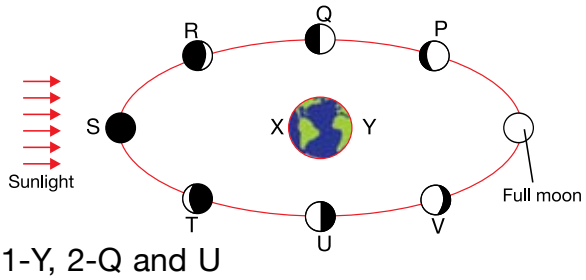
33. The given graph shows the changes in amount of undigested food as it progresses through the alimentary canal. Select the INCORRECT option regarding the parts labelled as P, Q, R, S and T.



A. Q and T are oesophagus and large intestine respectively.
B. P represents mouth where about 30% of carbohydrate is digested.
C. S is small intestine, where both digestion and absorption takes place.
D. R is stomach, the primary site of digestion of carbohydrate and protein.

---

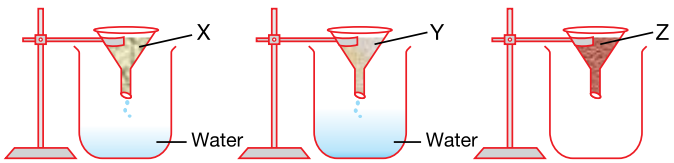
34. Study the given diagram.
1. The phases of the Moon can be seen on _____ side of the Earth.
2. Which of the phases are as equally illuminated as the Earth?



A. 1-Y, 2-P and V
B. 1-Y, 2-Q and U
C. 1-X, 2-R and T
D. 1-X, 2-Q and U

---

35. 100 gms of three types of soil were put in a funnel and each funnel was put on an empty beaker using stands. Then 60 mL water was poured over each of them. The result is shown in the given figure.



Identify the soil types and select the correct option.

A. X is clay and Y is gravel.
B. Y is gravel and Z is sand.
C. X is sand and Y is clay.
D. Y is sand and Z is clay.

SPACE FOR ROUGH WORK

Copyright©2015. Science Olympiad Foundation (SOF)

ANSWER KEYS

13TH NSO

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

14TH NSO

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

15TH NSO

SET A

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

SET B

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

16TH NSO

SET A

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

SET B

1.	(C)	**2.**	(A)	**3.**	(A)	**4.**	(B)	**5.**	(C)	**6.**	(A)	**7.**	(A)
8.	(A)	**9.**	(D)	**10.**	(A)	**11.**	(D)	**12.**	(D)	**13.**	(B)	**14.**	(D)
15.	(C)	**16.**	(A)	**17.**	(A)	**18.**	None	**19.**	(D)	**20.**	(D)	**21.**	(A)
22.	(C)	**23.**	(C)	**24.**	(B)	**25.**	(C)	**26.**	(C)	**27.**	(B)	**28.**	(B)
29.	(C)	**30.**	(D)	**31.**	(D)	**32.**	(B)	**33.**	(B)	**34.**	(B)	**35.**	(C)

17TH NSO

SET A

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

SET B

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

Copyright©2015. Science Olympiad Foundation (SOF)