



**SOF NATIONAL SCIENCE
OLYMPIAD 2024-25**

DO NOT OPEN THIS BOOKLET UNTIL ASKED TO DO SO

CLASS **5**

SET-B

Total Questions : 50 | Time : 1 hr.

Guidelines for the Candidate

- You will get additional ten minutes to fill up information about yourself on the OMR Sheet, before the start of the exam.
- Write your **Name, School Code, Class, Section, Roll No.** and **Mobile Number** clearly on the **OMR Sheet** and do not forget to sign it. We will share your marks / result and other information related to SOF exams on your mobile number.
- The Question Paper comprises three sections:
Logical Reasoning (10 Questions), **Science** (35 Questions) and **Achievers Section** (5 Questions)
Each question in Achievers Section carries 3 marks, whereas all other questions carry one mark each.
- All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
- There is only ONE correct answer. Choose only ONE option for an answer.
- To mark your choice of answers by darkening the circles on the OMR Sheet, use **HB Pencil** or **Blue / Black ball point pen** only. E.g.
Q. 16: Hard outer covering of the tree trunk is called
A. Bark B. Spine C. Branch D. Bud.
As the correct answer is option A, you must darken the circle corresponding to option A on the OMR Sheet.
- Rough work should be done in the blank space provided in the booklet.
- Return the OMR Sheet to the invigilator at the end of the exam.
- Please fill in your personal details in the space provided before attempting the paper.
- Participate in SOF-Techfest IIT Bombay Innovation Challenge. Open for class 8, 9 & 10. For details, please visit : www.sofworld.org**

16. ● ○ ○ ○

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slow, then find the correct time of clocks M and N respectively.



M



N

- A. 9:05 and 4:00
- B. 9:35 and 4:10
- C. 9:15 and 4:20
- D. 9:05 and 4:10

2 Select the correct mirror image of the given word.



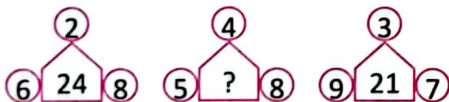
Mirror

- A. B.
- C. D.

3 In a certain code language, if TALENT is written as UBMDMS, then how will SEARCH be written in the same code language?

- A. TFBSDI
- B. RDBQDG
- C. TFBQBG
- D. UDBSBG

4 Find the missing number, if same rule is followed in all the three figures.

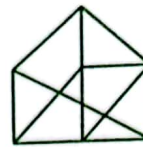


- A. 10
- B. 28
- C. 20
- D. 15

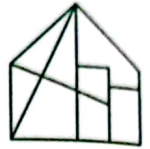
5 In a row of people, Sridhar is 12th from the right end and Meenu is 7th from the left end. If there are 10 people between Sridhar and Meenu, then find the number of people in the row.

- A. 27
- B. 30
- C. 29
- D. 28

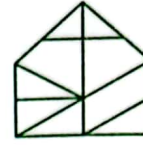
A.



B.



C.



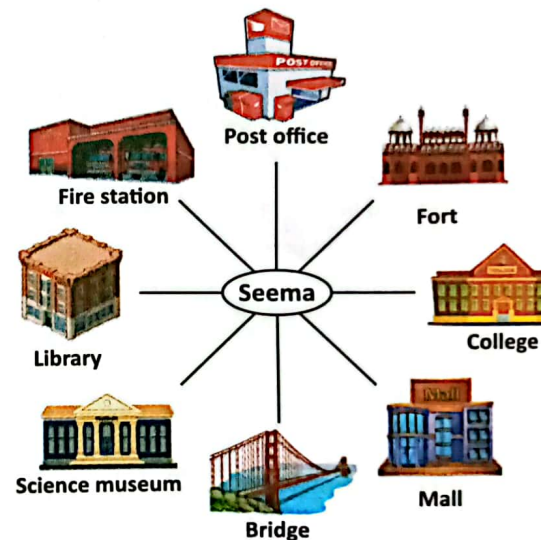
D.



7 Select the odd one out.

- A. 8S
- B. 5V
- C. 4X
- D. 7T

8 Seema is facing towards Fire station. If she turns anti-clockwise and then 270° clockwise, then where will she be facing now?



- A. Library
- B. Science museum
- C. College
- D. Bridge

9 How many different possible combinations of one ₹ 5 coin and one ₹ 10 coin each can be formed from the given ₹ 5 and ₹ 10 coins?



- A. 21
- B. 18

- C. 24
D. 10

10 Arrange the given words in a logical order and then select the appropriate sequence from the options.

1. Village
2. Room

3. Country

4. House

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

SCIENCE

11 Complete the given analogy by selecting the correct option.

Beetle : _____ :: Tortoise : Shell

- A. Cuticle
B. Feather
C. Hair
D. Scute

12 Select the correct match.

- A. Wrist – Hinge joint
B. Hip – Ball and socket joint
C. Knee – Gliding joint
D. Elbow – Pivot joint

13 Refer to the given relationship based on the seed or fruit dispersal method and select the option that satisfies the same relationship.



- A. Balsam : Poppy
B. Cotton : Cocklebur
C. Pea : Coconut
D. Dandelion : Lotus

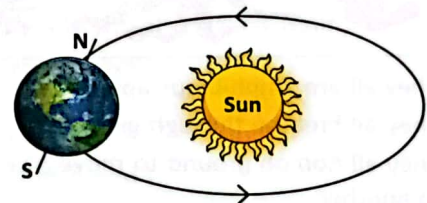
14 Which one of the following pairs is wrongly classified?

	Positive effect on the environment	Negative effect on the environment
A.	Incinerating rubbish in residential areas	Covering opened dustbins left out in the open
B.	Using public transport and cutting down use of fossil fuel	Cutting down trees
C.	Collecting rainwater for watering garden plants	Discharge of agricultural runoff into water bodies
D.	Using recycled material	Leaving unfinished food at the canteen table

15 Select the incorrect statement.

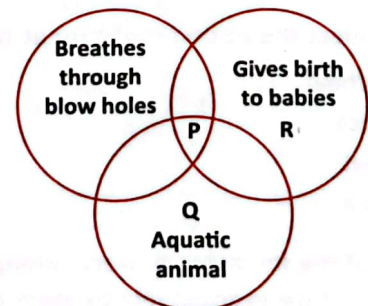
- A. Diesel is obtained from crude oil that is often found between the rocks.
B. Bituminous and lignite are types of coal found on Earth.
C. Bauxite and sphalerite are the ores of copper.
D. Platinum is a precious metal and is used for making jewellery.

16 Observe the movement of Earth shown in the given diagram and select the correct statement regarding it.



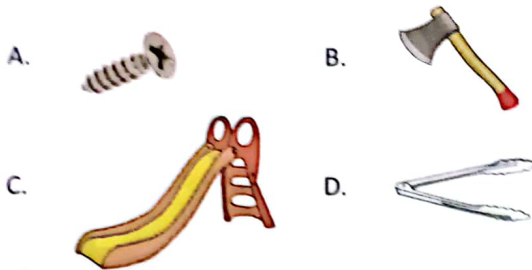
- A. Different parts of Earth receive different amount of sunlight during this movement.
B. Whole Earth receives sunlight when Sun is on the East of Earth as shown in the diagram.
C. The equator experiences 6 months of day and 6 months of night due to this movement.
D. Seasons never change at the poles, North Pole always experiences summer and South Pole always experiences winter.

17 Refer to the given Venn diagram and select the incorrect option regarding P, Q and R.



- A. P can be whale while Q can be rohu.
B. Q can be salmon while R can be chimpanzee.
C. R can be rabbit while P can be dolphin.
D. None of these

18 Which of the following is an example of wedge?



19 Unscramble the given letters to obtain the name of an animal that crawls and has body covering of scutes and select the correct option.

- A. NUEPGNI
- B. OEPCPIURN
- C. RLDCEIOO
- D. NISLA

20 Which of the following statements is correct regarding the animals shown in the given box?



- A. They all are amphibious animals.
- B. They all breathe through gills.
- C. They all hop on ground to move from one place to another.
- D. They all have body covering of scutes.

21 In case of an LPG gas leak in the house, you should _____.

- A. Open all doors and windows of the house
- B. Not switch on or off any electrical appliance
- C. Not light a matchstick
- D. All of these

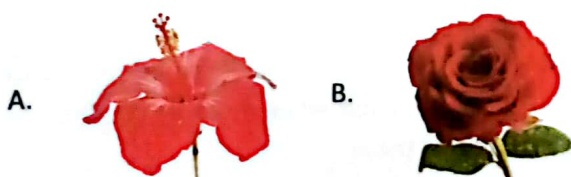
22 Read the given information.

X is a monocot plant that has fibrous roots.

Now, select the option that cannot be X.

- A. Wheat
- B. Rice
- C. Oat
- D. Pea

23 Which of the following flowers belongs to a plant that can reproduce vegetatively by stem cuttings?



24 Ajanta Caves in Maharashtra have paintings that show the life of _____.

- A. Mughal emperors
- B. Dravidian kings
- C. Buddha
- D. Rajput kings

25 Which of the following statements is correct regarding earthquakes?

- A. The point under the ground where the earthquake begins is called epicentre.
- B. Smaller quakes or tremors that occur after massive earthquakes are called aftershocks.
- C. Earthquakes of magnitude 5-6 on richter scale are not felt by us.
- D. The scientists who study earthquakes are called geologists.

26 Select the correct match.

	Traditional dress	State
A.	Phiran	— Punjab
B.	Chorno	— Gujarat
C.	Pheta	— Kerala
D.	Mundu	— Maharashtra

27 Select the odd one out on the basis of type of solution.

- A. Steel
- B. Brass
- C. Bronze
- D. Mercury in silver

28 Read the given statements and select the option that correctly identifies them as true (T) and false (F) ones.

- (i) Soft drink is a solution of gas in liquid.
- (ii) Water expands on freezing.
- (iii) Melting a chocolate bar does not affect its composition or chemical nature.
- (iv) Boiling of egg is a physical change as no new substances are formed.

	(i)	(ii)	(iii)	(iv)
A.	T	F	T	F
B.	T	T	T	F
C.	T	T	F	F
D.	F	T	T	T

- 29 Refer to the items in the given figures (i)-(iii) and select the option that correctly identifies the energy conversions shown by them.



- | | (i) | (ii) | (iii) |
|----|-------------------------|-------------------------|------------------|
| A. | Electrical → Heat | Wind → Heat | Chemical → Light |
| B. | Heat → Chemical | Wind → Electrical | Heat → Chemical |
| C. | Mechanical → Electrical | Electrical → Heat | Chemical → Heat |
| D. | Electrical → Heat | Electrical → Mechanical | Chemical → Light |

- 30 Select the food item that is rich in calcium.

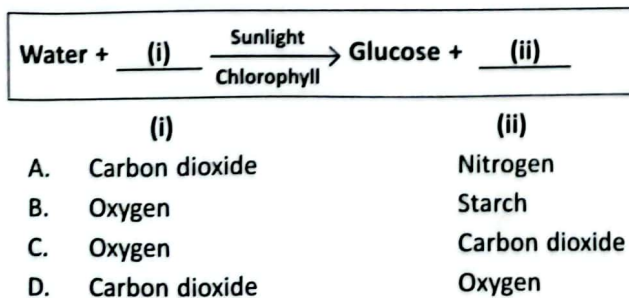


- 31 Match the columns and select the correct option.

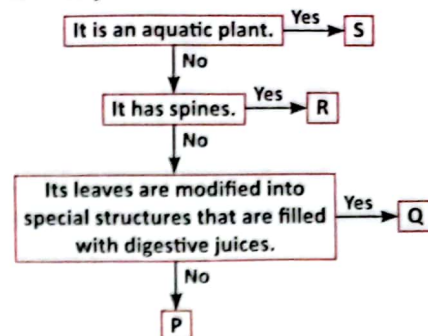
Column I (Folk dance)	Column II (State)
(a) Ghoomar	(i) Maharashtra
(b) Garba	(ii) West Bengal
(c) Lavani	(iii) Rajasthan
(d) Chhau	(iv) Gujarat

- A. (a) – (iii), (b) – (i), (c) – (ii), (d) – (iv)
 B. (a) – (i), (b) – (iii), (c) – (iv), (d) – (ii)
 C. (a) – (iii), (b) – (iv), (c) – (i), (d) – (ii)
 D. (a) – (iv), (b) – (iii), (c) – (i), (d) – (ii)

- 32 Select the option that correctly fills the blanks (i) and (ii) in the given equation.



- 33 Refer to the given flow chart and select the option that correctly identifies P–S.



- | | P | Q | R | S |
|----|--------|---------------|------------|--------------|
| A. | Fir | Sundew | Mango | Duckweed |
| B. | Cedar | Venus flytrap | Eucalyptus | Hydrilla |
| C. | Teak | Pitcher plant | Cactus | Tape grass |
| D. | Banyan | Sundew | Fir | Sundari tree |

- 34 Study the given food chain carefully.



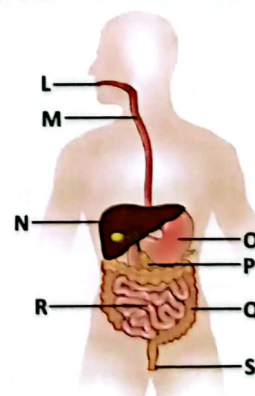
Whose population will increase if snake population decreases in the given food chain?

- A. Grasshopper
 B. Frog
 C. Eagle
 D. Both A and C

- 35 Select the animal pair who has similar breathing mechanisms.

- A. Bat : Fish
 B. Turtle : Lizard
 C. Butterfly : Mouse
 D. Earthworm : Cockroach

- 36 Identify L-S in the given figure of human digestive system and select the correct statement regarding them.



- A. Digestion of food starts in L and ends in S.
 B. Digestive juices from P and Q are poured into N.
 C. Food is churned in O while digested food is absorbed in R.
 D. M secretes saliva while N secretes HCl.

37. Select the correct match.

	Type of teeth	Total number in adult human
A.	Incisors	4
B.	Molars	8
C.	Canines	4
D.	Premolars	12

38. Read the given statements about a planet and identify it.

- It rotates in anti-clockwise direction.
- It takes 165 Earth years to complete one revolution.
- It has 16 known moons.

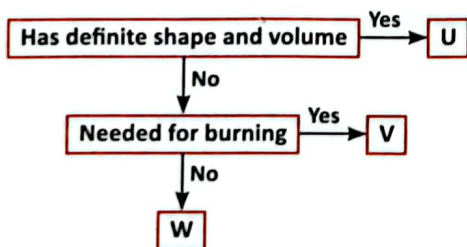
- A. Uranus
B. Saturn
C. Neptune
D. Jupiter

39. Complete the given analogy by selecting the correct option.

Cotton : Clothing :: _____ : Clothing fibre
fibre obtained from a fruit

- A. Fur
B. Silk
C. Linen
D. Wool

40. Refer to the given flow chart and select the option that correctly identifies U, V and W.



	U	V	W
A.	Naphthalene	Carbon dioxide	Oxygen
B.	Ice	Hydrogen	Nitrogen
C.	Gold brick	Nitrogen	Oxygen
D.	Camphor	Oxygen	Hydrogen

41. Select the option that correctly arranges the given food items in ascending order of their weight.



- A. $1 > 2 > 3 > 4$
B. $1 > 2 = 3 > 4$
C. $4 < 3 = 2 < 1$
D. $4 < 2 < 3 < 1$

42. The activity shown in the given figure will be easier to do if



- A. The ground is made smoother
B. A wheeled trolley is placed below the wooden logs
C. Two people are involved, one pushes and other pulls in the same direction
D. All of these.

43. Refer to the given list of few items.

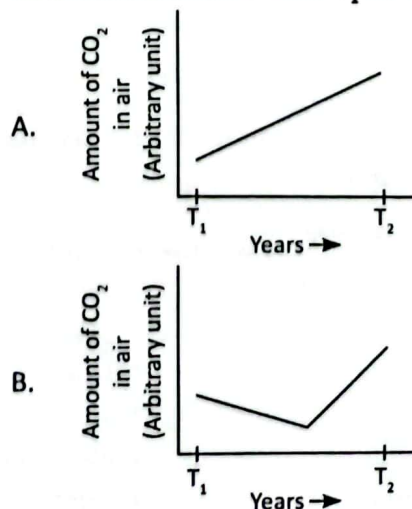
Thermocol sheet, Styrofoam cup, Vegetable peels, Jute bag, Aluminium can, Nylon rope, Plastic bottle

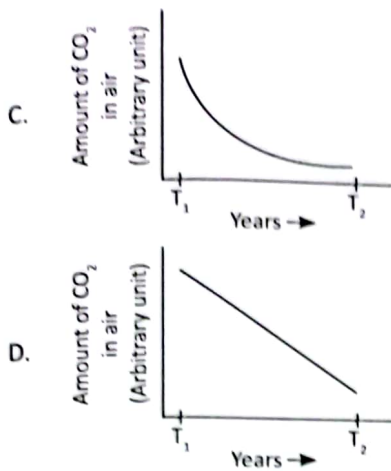
How many among them are biodegradable?

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

44. The number of petrol vehicles sold over a period of years starting from 3 lakhs in year T_1 has been increased to 6 lakhs in year T_2 .

Which of the following graphs correctly shows the most probable change in amount of carbon dioxide concentration in air from T_1 to T_2 ?





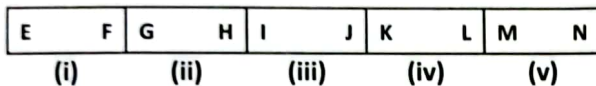
- 45 Select the correct statement regarding phases X and Y of Moon.



- A. We see New Moon 2-3 days before phase X.
 B. There is approximately 7 days gap between phases X and Y.
 C. New Moon is 14 days away from phase Y.
 D. We see a Full Moon around 4 days before phase Y.

ACHIEVERS SECTION

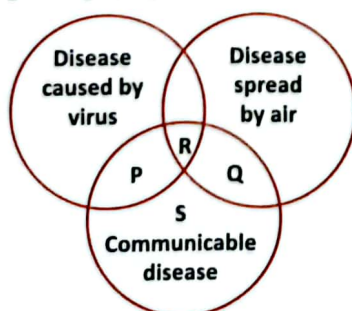
- 46 Refer to the given diagram showing arrangement of five magnets (i)-(v). (Note : K Pole of magnet (iv) represents South pole.)



Which of the following is another possible arrangement of any three of these magnets?

- A.
-
- B.
-
- C.
-
- D.
-

- 47 Refer to the given Venn diagram and select the correct option regarding P, Q, R and S.



- A. P can be rickets or anaemia whereas Q can be dengue or chicken pox.

- B. Q can be chikungunya whereas R can be influenza or common cold.
 C. R can be chicken pox or ringworm whereas S can be diarrhoea or cholera.
 D. P can be chikungunya whereas S can be typhoid or cholera.

- 48 Refer to the given table showing characteristics of three different items P, Q and R and select the correct option.

Characteristic	Item		
	P	Q	R
Solid	✓	✓	✓
Magnetic	✗	✓	✗
Soluble in water	✓	✗	✗
Opaque	✓	✓	✗

- A. P can be vinegar whereas Q can be glass door.
 B. Q can be iron plate whereas R can be cellophane paper.
 C. R can be sugar whereas P can be iron nail.
 D. P can be rubber doll whereas Q can be mud brick.

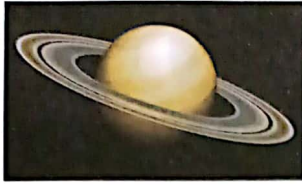
- 49 Refer to the names of crops in the given box.

1. Wheat, 2. Maize, 3. Soybean, 4. Rice, 5. Mustard, 6. Groundnut, 7. Gram

Now, select the option that correctly categorises them into rabi and kharif crops.

Rabi crops	Kharif crops
A. 2, 3, 4, 6	1, 5, 7
B. 1, 2, 3, 4	5, 6, 7
C. 1, 5, 7	2, 3, 4, 6
D. 2, 3, 6, 7	1, 4, 5

- 50 Identify the heavenly body X shown in the given figure and select the correct statement(s) regarding it.



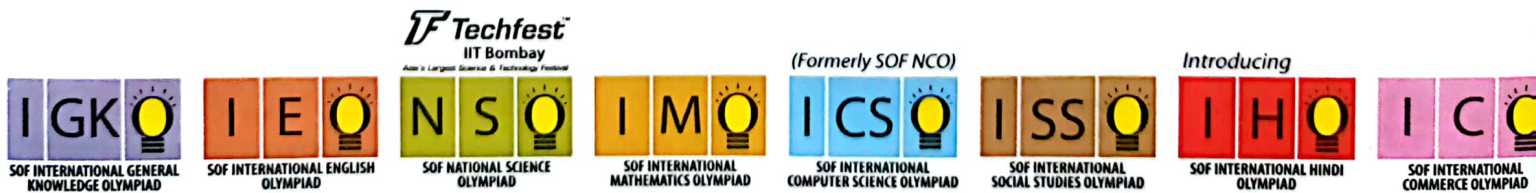
X

- (i) X takes around 30 Earth years to complete one revolution around the Sun.

- (ii) X is the second largest planet of our Solar System
(iii) X has only 16 natural satellites and is mainly made up of hydrogen and helium.
(iv) The atmosphere of X consists of mostly carbon-dioxide and small amount of oxygen and water vapour.

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

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