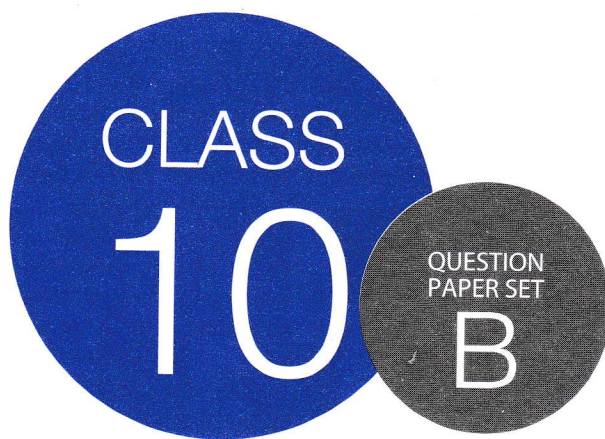


**SOF NATIONAL SCIENCE
OLYMPIAD 2023-24**



DO NOT OPEN THIS BOOKLET UNTIL ASKED TO DO SO

Total Questions: 50 | Time: 1 hr.

Guidelines for the Candidate

1. You will get additional ten minutes to fill up information about yourself on the OMR Sheet, before the start of the exam.
2. Write your **Name, School Code, Class, Section, Roll No.** and **Mobile Number** clearly on the **OMR Sheet** and do not forget to sign it. We will share your marks / result and other information related to SOF exams on your mobile number.
3. The Question Paper comprises three sections:
Logical Reasoning (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.
4. All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
5. There is only ONE correct answer. Choose only ONE option for an answer.
6. To mark your choice of answers by darkening the circles on the OMR Sheet, use **HB Pencil** or **Blue / Black ball point pen** only. E.g.
Q.16: In the water cycle, condensation is the process of
A. Water vapour cooling down and turning into a liquid B. Ice warming up and turning into a liquid
C. Liquid cooling down and turning into ice D. Liquid warming up and turning into water vapour
As the correct answer is option A, you must darken the circle corresponding to option A on the OMR Sheet.
7. Rough work should be done in the blank space provided in the booklet.
8. Return the OMR Sheet to the invigilator at the end of the exam.
9. Please fill in your personal details in the space provided before attempting the paper.
10. **For classes 8, 9 & 10, "Innovation Challenge" is being conducted by Techfest IIT Bombay in association with SOF. For details and to participate, please turn to last page.**



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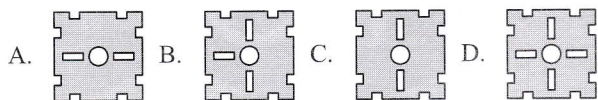
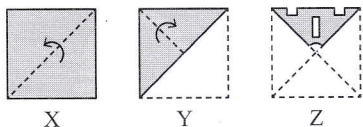
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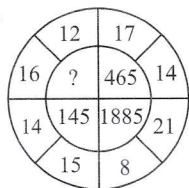
LOGICAL REASONING

1. The given question consists of a set of three figures X, Y and Z showing a sequence of folding of a piece of paper. Figure Z shows the manner in which the folded paper has been cut. Select the figure from the options which would most closely resemble the unfolded form of figure Z.



2. Find the missing number in the given figure.

- A. 410
B. 560
C. 350
D. 280



3. Study the given information carefully and answer the following question.

'A + B' means 'A is the father of B'.

'A × B' means 'A is the sister of B'.

'A - B' means 'A is the mother of B'.

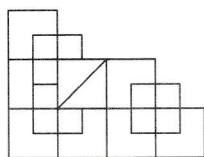
'A ÷ B' means 'A is the son of B'.

Which of the following means H is the sister-in-law of K?

- A. $K + M \times L \div H$ B. $K - M + L \times H$
C. $K \times M + L \div H$ D. $K \times M - L + H$

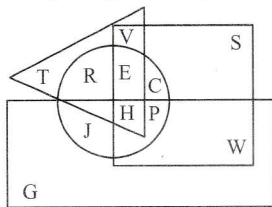
4. Find the number of squares formed in the given figure.

- A. 19
B. 20
C. 21
D. More than 21

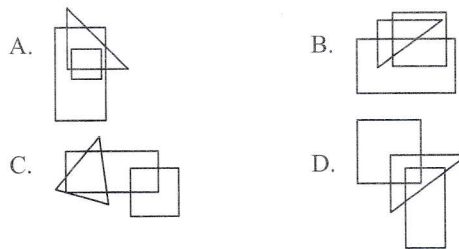
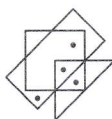


5. In the given Venn diagram, rectangle represents women, square represents people who can cook, circle represents people living in a hostel and triangle represents people using public transport. Which of the following alphabets represents men who can cook and are living in a hostel and also use public transport?

- A. H B. E
C. R D. V



6. Select a figure from the options which satisfies the same conditions of placement of dots as in the given figure.



7. Select the odd one out.

- A. ROML B. KHFE C. MJHG D. WSQP

8. A word and number arrangement machine when given an input line of words and numbers, rearranges them following a particular rule in each step. The following is an illustration of input and steps of rearrangement.

Input : 42 wind 38 mist 21 fire 81 water 26 sun

Step I : 21 fire 42 wind 38 mist 81 water 26 sun

Step II : 21 fire 26 mist 42 wind 38 81 water sun

Step III : 21 fire 26 mist 38 sun 42 wind 81 water

Step IV : 21 fire 26 mist 38 sun 42 water wind 81

Step V : 21 fire 26 mist 38 sun 42 water 81 wind

And Step V is the last step of the above input.

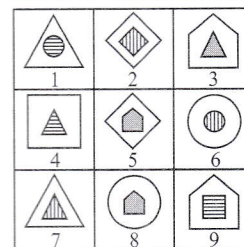
As per the rules followed in the above steps, find the input, if step III is given.

Step III : 16 dragon 34 good 52 hide 81 64 seek rain

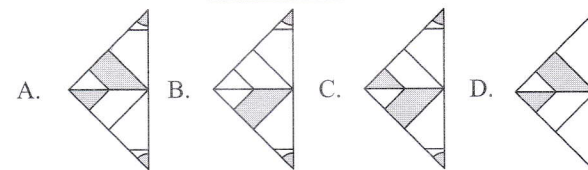
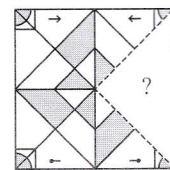
- A. 34 good 52 dragon 16 hide 81 rain 64 seek
B. 34 good 52 rain 16 seek 81 dragon 64 hide
C. 34 good 81 rain 64 seek 16 hide 52 dragon
D. Can't be determined

9. Group the given figures into three classes on the basis of their identical properties using each figure only once.

- A. 1, 6, 9; 2, 4, 7; 3, 5, 8
B. 1, 4, 8; 2, 6, 7; 3, 5, 9
C. 1, 4, 9; 2, 6, 7; 3, 5, 8
D. 1, 4, 9; 2, 5, 8; 3, 6, 7



10. Select a figure from the options, which when placed in the blank space of the given figure would complete the pattern.



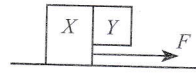
SCIENCE

11. Read the given statements and select the correct option.

Statement 1 : In the given figure, two blocks are depicted. Block X is moving on the horizontal surface towards right

under the action of force F . All the surfaces are smooth. At the instant shown, the force exerted by block X on the block Y is equal to net forces on block Y.

Statement 2 : The force exerted by block X on Y is of different magnitude as compared to the force exerted by block Y on X.



- A. Both statements 1 and 2 are true and statement 2 is the correct explanation of statement 1.
 B. Both statements 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
 C. Statement 1 is true but statement 2 is false.
 D. Both statements 1 and 2 are false.
12. A man pushes a block of mass 30 kg along a horizontal floor at a constant speed with a force directed at 45° below the horizontal. If the coefficient of friction is 0.20, then, match column I with column II and select the correct option from the given codes.

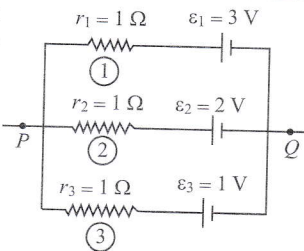
Column I

Column II

- | | |
|---|---|
| (a) Work done by all forces exerted by the surface on the block in pushing it through 20 m. | (i) zero |
| (b) Work done by the force of gravity. | (ii) -1500 J |
| (c) Work done by the man on the block in pushing it through 10 m | (iii) 750 J |
| (d) Net force on the block | (iv) 30 J
(v) 30 N |

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

13. An electrical circuit consisting of three electric cells of internal resistances r_1 , r_2 and r_3 is shown in the given figure. Current passing through the branch (3) will be

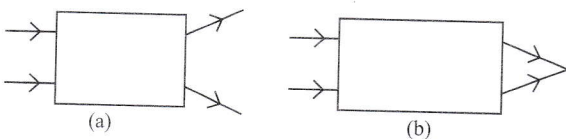


- A. 0 A B. 1 A
 C. -1 A D. 2 A

14. Read the given statements carefully and select the option that correctly identifies them as true (T) and false (F) ones.
- (i) The acceleration due to gravity at the equator is greater than the acceleration due to gravity at poles.
 (ii) Acceleration due to gravity increases while going inside the surface of earth.
 (iii) The value of one atmospheric pressure is approximately equal to $101.3 \times 10^3 \text{ N m}^{-2}$.
 (iv) Buoyant force acts in the direction of the weight of the immersed object.

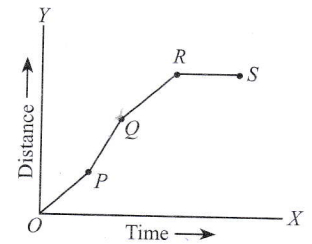
- | | (i) | (ii) | (iii) | (iv) |
|----|-----|------|-------|------|
| A. | F | T | F | F |
| B. | F | F | T | F |
| C. | F | F | F | T |
| D. | T | T | F | T |

15. In the given figures, optical devices are placed inside boxes (a) and (b). Select the correct statement.



- A. In (a), the incident rays are diverged after refraction, so the device is concave lens.
 B. In (b), the incident rays are converged after coming out of the box, so the device is convex mirror.
 C. In (a), the incident rays are diverged after coming out, so the device is convex lens.
 D. In (b), the incident rays are converged after refraction, so device is concave lens.

16. The distance time graph of a body is represented in the given figure. The correct statement(s) about the motion of the body is/are



- A. Velocity of the body is maximum in the portion PQ
 B. Velocity of the body is zero in the portion RS
 C. Velocity of the body is uniform in the portion OP
 D. All of these.

17. There are four situations as given here.

- I. A rectangular loop carrying current.
 II. A solenoid of finite length carrying current.
 III. An infinitely long wire carrying current.
 IV. A circular loop carrying current.

The situation(s) in which magnetic field produced is similar to a bar magnet, include

- A. I and II only B. III and IV only
 C. II only D. III only.

18. Which of the following statements are correct?

- (i) The phenomenon of reflection and refraction of light can be explained only by wave nature of light.
 (ii) A dentist uses a concave mirror to view the inner parts of a patients' mouth.
 (iii) Negative value of magnification by lens shows real and inverted type of image.
 (iv) When half portion of a lens is blackened, only half of the image is observed.

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

19. Match column I with column II and select the correct option from the given codes.

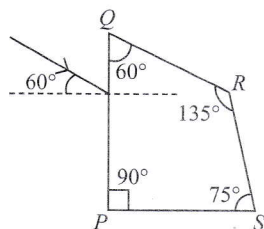
Column I

Column II

- | | |
|---|--|
| P. Greater is the resistance, smaller is the power | (i) If the same voltage is applied across a resistance |
| Q. Smaller the resistance, greater is the current in it | (ii) If the same current is passed |
| R. Greater or smaller the resistance, the current is same | (iii) When resistances are connected in series |
| S. Greater the resistance, greater the power | (iv) When resistances are connected in parallel |

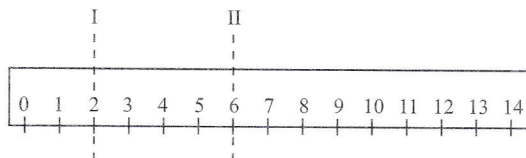
- A. P-(ii), Q-(i), R-(iv), S-(iii)
 B. P-(i), Q-(iv), R-(iii), S-(ii)
 C. P-(iv), Q-(i), R-(ii), S-(ii)
 D. P-(i), Q-(iv), R-(ii), S-(iii)

20. A monochromatic light is incident on the face PQ of prism $PQRS$ near to the vertex Q at an incident angle of 60° as shown in the given figure.



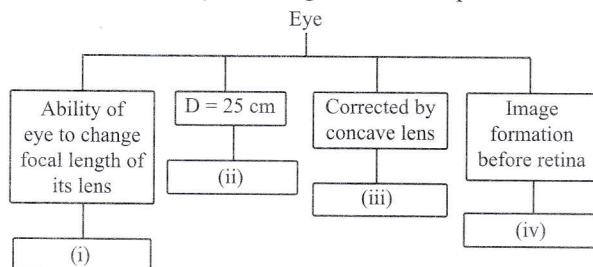
If refractive index of the material of the prism is $\sqrt{3}$, then select the correct statement(s).

- (i) The ray gets totally internally reflected at face RS .
 (ii) The ray comes out through face PS .
- A. (i) only B. (ii) only
 C. Both (i) and (ii) D. Neither (i) nor (ii)
21. Two long parallel conductors I and II are placed at right angles to a metre scale, at the 2 cm and 6 cm mark as shown in the given figure. They carry currents of 1A and 3A respectively in the same direction. They will produce zero magnetic field at



- A. Zero mark B. 10 cm mark
 C. 3 cm mark D. 6 cm mark.

22. Fill in the boxes by selecting the correct option.



- (i) (ii) (iii) (iv)
- A. Persistence Near point Hypermetropia Myopia
 B. Accommodation Near point Myopia Hypermetropia
 C. Persistence Far point Hypermetropia Hypermetropia
 D. Accommodation Near point Myopia Myopia

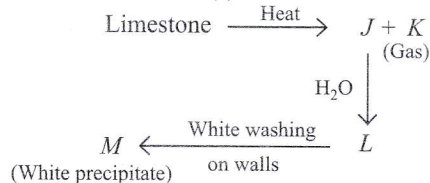
23. The melting and boiling points of four substances P , Q , R and S are given in the following table :

Substances	Melting point	Boiling point
P	-15°C	68°C
Q	32°C	97°C
R	-4°C	76°C
S	10°C	112°C

Which of the following statements is not correct regarding P , Q , R and S ?

- A. At -2°C , P will have a definite volume but no definite shape and at -8°C , R will have a definite shape and definite volume.
 B. At -20°C , the constituent particles of P will be less closely packed than at -5°C .
 C. At 125°C , S will have more interparticle spaces than at 85°C .
 D. The rate of evaporation of the four substances will be in the order $P > R > Q > S$.

24. Observe the following flow chart carefully and identify the incorrect statement(s).



- I. J reacts with both HCl and NaOH to form salt and water.
 II. K is a supporter of combustion and turns lime water milky.
 III. Formation of L from J is an endothermic reaction.
 IV. K is also produced by the reaction of M with hydrochloric acid.
- A. II and IV only B. IV only
 C. I, II and III only D. I, II and IV only

25. Nidhi took slaked lime, lemon juice, vinegar and lime water and put a drop of each on a watch glass one by one and tested with a drop of few indicators and tabulated her observations in the following table :

Experiment no.	Sample solution	Blue litmus solution	Phenolphthalein indicator	Methyl orange indicator	Red cabbage leaves extract
I.	Slaked lime	No change	Pink	Yellow	Green
II.	Lemon juice	Red	Colourless	Yellow	Red
III.	Vinegar	Red	Colourless	Red	Red
IV.	Caustic soda	No change	Colourless	Red	Green

The correct observation(s) is/are

- A. I and III only B. II and IV only
 C. I, II and IV only D. III only.
26. Consider three elements X , Y and Z with atomic numbers 13, 17 and 20 respectively. Select the correct statement among the following.
- A. X can be obtained by electrolytic reduction of its oxide and Z can be obtained by reduction of its oxide with carbon.
 B. Number of electrons present in the L shell of Y is 8 and the valency of Z is 3.
 C. Z does not react either with cold or hot water but X reacts violently with cold water and starts floating.
 D. X forms amphoteric oxide whereas Z forms basic oxide.

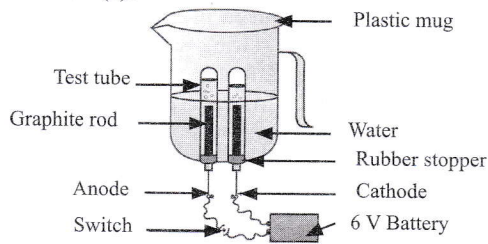
27. The given table shows the number of subatomic particles in six different elements P , Q , R , S , T and U .

Elements	Protons	Neutrons	Electrons
P	8	8	10
Q	12	12	10
R	11	12	10
S	18	22	18
T	15	16	15
U	10	10	10

Select the correct statement.

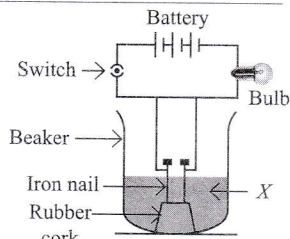
- A. Q , R and S are cations while T is an anion.
 B. P , Q and R are isoelectronic species while S and U are reactive elements.
 C. P is the lightest while S is the heaviest particle.
 D. Valency of T is 3 while the valency of U is one.

28. Observe the given diagram and identify the incorrect statement(s).



- (i) At anode, oxygen gas is evolved.
 (ii) In the test tube covering the anode, the amount of gas collected is double than that of the gas collected in the test tube covering the cathode.
 (iii) At cathode, hydrogen gas is evolved.
 (iv) It is a decomposition reaction.
- A. (i) and (iii) only B. (i) and (iv) only
 C. (iii) and (iv) only D. (ii) only

29. In the given set-up,
 I. if X is glucose solution
 II. if X is dilute hydrochloric acid
 III. if X is aqueous sodium hydroxide solution
 IV. if X is powdered sodium chloride



- then the bulb will light up in case of
 A. II only B. II and III only
 C. III only D. I and IV only.

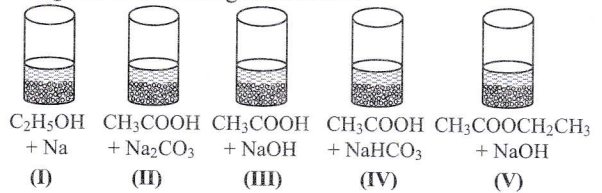
30. Fill in the blanks in the given table by selecting the correct option.

S. No.	Dispersion medium	Dispersed phase	Example
1.	Gas	Liquid	(i)
2.	Gas	(ii)	Smoke
3.	(iii)	Liquid	Milk
4.	Gas	Solid	(iv)
5.	Solid	(v)	Sponge

- | | (i) | (ii) | (iii) | (iv) | (v) |
|----|--------|--------|--------|--------------------|--------|
| A. | Fog | Solid | Liquid | Mist | Gas |
| B. | Cheese | Liquid | Gas | Shaving cream | Solid |
| C. | Mist | Solid | Liquid | Automobile exhaust | Liquid |
| D. | Cloud | Solid | Liquid | Automobile exhaust | Gas |

31. Select the correct statements.
- I. In the electrolytic refining process, the impure metal is made the anode and a thin strip of pure metal is made the cathode.
 II. Copper which is found as Cu_2S in nature can be obtained from its ore by electrolysis.
 III. Oxides of highly reactive metals can be reduced to metals by the action of heat alone.
 IV. Carbonate ores are decomposed to form metal oxides by heating in the absence of air.
- A. I and IV only B. II and III only
 C. I, III and IV only D. I, II, III and IV

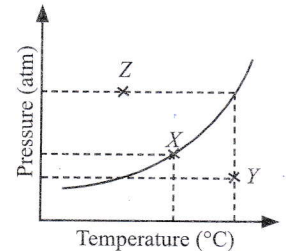
32. In which of the following reactions, the gas on evolution extinguishes a burning matchstick?



- A. I, III and V only B. II and IV only
 C. I, II and IV only D. II, IV and V only

33. A metal forms chloride of the type MCl_2 having formula unit mass 111 u. The number of atoms in one molecule of its phosphate salt and the formula unit mass of its anhydrous sulphate salt are respectively
 (Given : Atomic mass of S = 32 u, O = 16 u)
- A. 13, 136 B. 11, 136 C. 13, 172 D. 11, 172

34. The given graph shows the change of boiling point of water with pressure.

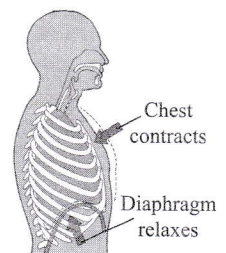


Identify the correct statements among the following.

- I. The graph shows that boiling point of water increases with increasing pressure.
 II. At X, both liquid and gaseous states are present.
 III. At point Z, water exists as a gas.
 IV. At point Y, water exists as a liquid.

- A. II and III only B. III and IV only
 C. I and II only D. I, III and IV only

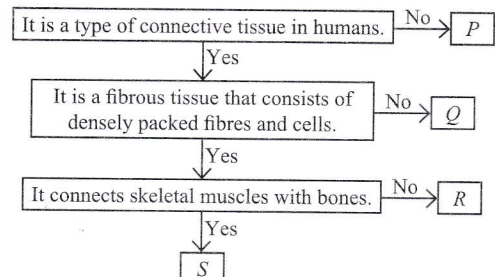
35. Identify the process shown in the given figure and select the correct option regarding it.



During the given process

- A. Volume of thoracic cavity decreases as air moves out
 B. Air pressure inside the lungs decreases as a result atmospheric air rushes into the lungs.
 C. Ribs move upward and outward and volume of thoracic cavity increases.
 D. Both A and C

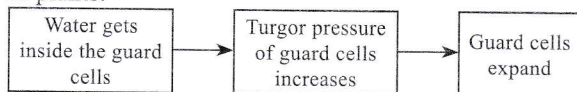
36. Refer to the given flow chart.



Identify P-S and select the correct statement regarding them.

- A. P could be a tissue that forms endoskeleton of a vertebrate body.
 B. S could be a tissue that is made up of white collagen fibres.
 C. R could be a tissue that also lines the kidney tubules and oviducts.
 D. Q could be a tissue that is found in the walls of heart.

37. Refer to the given sequence of events related to respiration in plants.

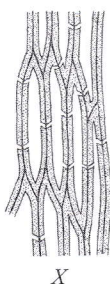


This whole event will lead to

- A. Decrease in the rate of photosynthesis
 B. Closing of stomatal pore
 C. Opening of stomatal pore
 D. Decrease in the rate of transpiration.
38. Select the incorrect statement.
- A. Relaxin hormone is released from the ovary. It plays an important role during child birth.
 B. Luteinising hormone causes release of ovum from the ovary during 14th day of menstrual cycle.
 C. Zygote undergoes repeated mitotic divisions to form blastocyst.
 D. In a normal human female, implantation of the blastocyst to the uterine wall occurs after 17 days of fertilisation.

39. Identify plant tissue X from the given figure and select the correct statement regarding it.

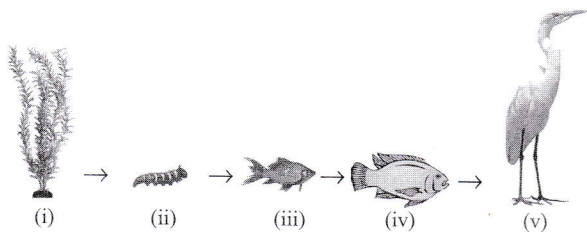
- A. It contains chloroplast and takes part in photosynthesis.
 B. It acts as a water storage tissue in succulent plants such as *Euphorbia*.
 C. It provides hard protective covering in nuts.
 D. It stores waste products, i.e., gums and tannins in some plants.



40. In which of the following organisms, sex determination occurs under the effect of environmental factors?

- A. *Chrysemys picta*
 B. *Ailuropoda*
 C. *Drosophila melanogaster*
 D. *Pavo cristatus*

41. Refer to the given food chain operating in a water body.



If a nearby factory starts discharging its chemical waste, that is rich in mercury into the water body, then the highest concentration of mercury will be found in

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

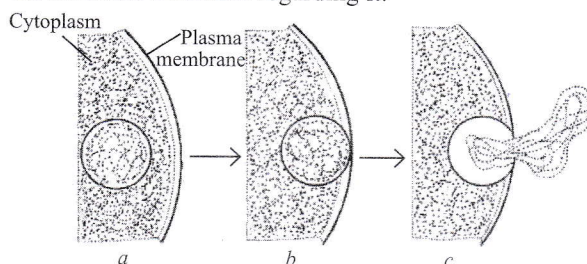
42. When a pure breeding tall pea plant having purple flowers is crossed with a dwarf pea plant having white flowers then, all the plants produced in F₁ generation were tall with purple flowers. On selfing the plants obtained in F₁ generation, new combinations were produced in the ratio 3 : 3 in F₂ generation. This occurred due to

- A. Law of dominance
 B. Law of independent assortment
 C. Back cross
 D. Reciprocal cross.

43. Which among the following is not a complex fertiliser?

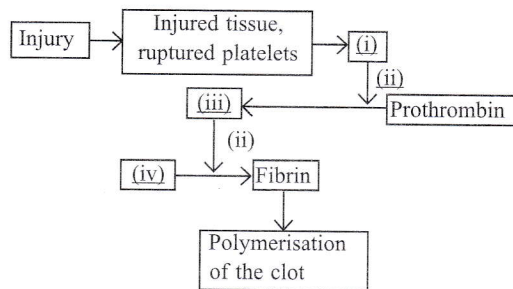
- A. Urea ammonium phosphate
 B. Ammonium phosphate
 C. Nitrophosphate
 D. Calcium ammonium nitrate

44. Identify the process shown in the given figures and select the incorrect statement regarding it.



- A. *Amoeba* acquires food by this process.
 B. It is also known as ephagy.
 C. It helps to secrete substances such as hormones and enzymes across a cellular barrier.
 D. Both B and C

45. Refer to the given flow chart and select the option that correctly fills the blanks (i)-(iv).



- | | (i) | (ii) | (iii) | (iv) |
|----|-----------------|------------------|-----------------|-----------------|
| A. | Thrombin | Ca ²⁺ | Thrombo-plastin | Fibrinogen |
| B. | Thrombo-plastin | Ca ²⁺ | Thrombin | Fibrinogen |
| C. | Thrombo-plastin | Mg ²⁺ | Fibrinogen | Thrombin |
| D. | Fibrinogen | Mg ²⁺ | Thrombin | Thrombo-plastin |

ACHIEVERS SECTION

Directions (Q. No. 46 and 47) : Read the given passage carefully and answer the following questions.

An organic compound (*W*) reacts with sodium leading to the evolution of hydrogen. Heating (*W*) at 443 K with excess conc. H₂SO₄

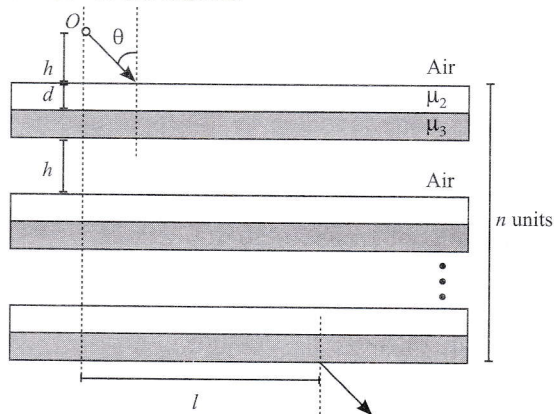
results in the formation of a compound (*X*). On heating (*W*) with alkaline KMnO₄ another organic compound (*Y*) is produced. When (*W*) reacts with (*Y*) in presence of an acid catalyst, a sweet smelling liquid (*Z*) with molecular formula C₄H₈O₂ is produced.

On treating with sodium hydroxide, (Z) gives (W) and sodium salt of (Y).

46. The compound (X)
- Has molecular formula C_2H_4 and it is a saturated hydrocarbon
 - Produces carbon dioxide and water on burning in air
 - Has two C=C double bonds and four C-H single bonds
 - Belongs to alkyne homologous series.

47. Identify the incorrect statement(s) among the following.
- The IUPAC name of (Y) is ethanoic acid.
 - The next higher member of the homologous series of (W) is propanal.
 - The reaction of (Z) with sodium hydroxide is known as esterification reaction.
 - (Y) is a weaker acid than sulphuric acid.
- IV only
 - I and IV only
 - II, III and IV only
 - II and III only

48. In the given figure, a configuration of n identical units, each consisting of three layers is shown. The first layer is a column of air of height $h = \frac{1}{5}$ cm, the second and third layers are of equal thickness, $d = \frac{\sqrt{2}-1}{3}$ cm with refractive indices $\mu_2 = \sqrt{\frac{3}{2}}$ and $\mu_3 = \sqrt{3}$, respectively. A light source O is placed on the top of the first unit. A ray of light from O is incident on the second layer of the first unit at an angle of $\theta = 60^\circ$ to the normal.

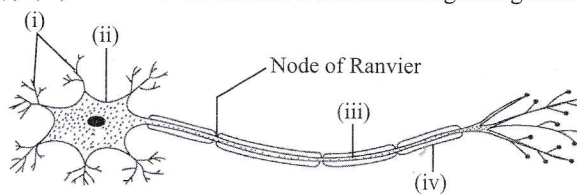


Which of the following statements are correct?

- For ten identical units, the ray of light emerges from the bottom of the configuration at a distance, $l = 5.63$ cm.
- For eight identical units, the ray of light emerges from the bottom of the configuration at a distance, $l = 5.63$ cm.

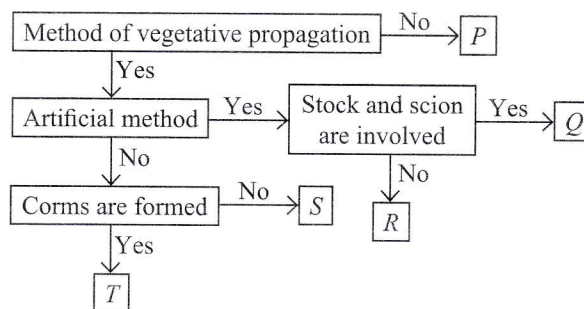
- The incident and emergent rays are parallel to each other.
 - The angle between emergent ray and incident ray is 60° .
- (i) and (iv) only
 - (ii) and (iv) only
 - (i) and (iii) only
 - (ii) and (iii) only

49. Refer to the given figure. Identify the labelled parts (i)-(iv) and select the incorrect statement regarding them.



- (i) contain both neurofibrils and Nissl's granules and are also called as afferent processes whereas (iv) is present between neurilemma and (iii).
- (ii) is devoid of mitochondria and Golgi apparatus however its cytoplasm is rich in Nissl's granules whereas (iii) is a cylindrical protoplasmic process arising from the cell body.
- (iii) lacks Nissl's granules and conducts nerve impulses away from the cell body whereas (i) receives stimulus from the receptor cells and conducts nerve impulses towards the cell body.
- (iv) provides insulation and protection to the nerve fibres whereas (ii) receives nerve impulses from (i) and transmits them to (iii).

50. Refer to the given flow chart and select the incorrect statement regarding P-T.



- In method P, placenta formation may take place whereas in method Q, plants of closely related dicotyledonous varieties having vascular cambia are used.
- Propagation of *Albizia* takes place by method S whereas propagation of *Crocus* takes place by method T.
- Method P can be seen in bisexual flowers whereas in method R callus formation may take place.
- Potato and onion propagate by method T whereas *Colocasia* and *Dahlia* propagate by method S.

SPACE FOR ROUGH WORK



SOF-TECHFEST IIT BOMBAY INNOVATION CHALLENGE

About the Challenge:

Techfest is Asia's Largest Science and Technology Festival and the Annual Science and Technology Festival of IIT Bombay. Techfest IIT Bombay is conducting Innovation Challenge in association with Science Olympiad Foundation for school students across the globe.

Guidelines:

- Appearing in the Innovation Challenge is not compulsory. No registration fee is to be paid.
- To participate, read the following problem statement and email the answer at ic.iitbombay@sofworld.org.
- Answers should be submitted as per the following schedule:

NSO Set-A 17 th October	NSO Set-B 21 st November	NSO Set-C 5 th December
By 22 nd October	By 26 th November	By 10 th December

PROBLEM STATEMENT

Green Innovation : Technological Breakthroughs for a Sustainable Tomorrow

In a rapidly evolving world, where the demand for resources and energy continues to rise, green innovation offers a pathway to mitigate environmental impact while promoting economic growth and societal well-being. Some of how innovative technologies are reshaping industries, practices, and lifestyles to align with sustainable principles are:

- **Sustainable Plastic Waste Management** - Without affecting the usage of plastic
- **Sustainable Habitat** - Zero or low energy consumption, low embodied energy and low construction waste
- **Sustainable Agriculture** - Focus on soil degradation, excessive water usage, detrimental effects of pesticides, insecticides, and fertilisers

Choose ANY ONE of the above topics and answer in the following format :

Title - Write the title of the chosen topic.

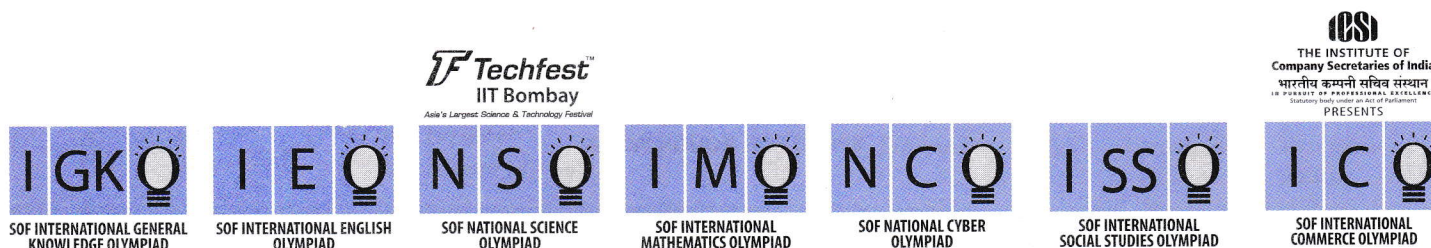
Problems - Describe the social, industrial, and environmental challenges corresponding to the topic and need for sustainable solutions (in about 100-150 words).

Solutions - Innovate and explain the sustainable solutions to the problems stated above (in about 150-200 words).

Conclusion - Justify your solutions concerning their implementation and impact (in about 50-100 words).

Rewards:

- Each participant will be awarded a Certificate of Participation from SOF-Techfest, IIT Bombay.
- Top 20 students will be invited to Techfest 2023-24 with an accompanying adult from 27th to 29th December 2023 with travel and accommodation provided by Techfest, IIT Bombay.
- Winners will be awarded trophies, gifts, merit certificates, and a visit to ISRO's Vikram Sarabhai Space Centre, Thiruvananthapuram with expenses reimbursed.



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