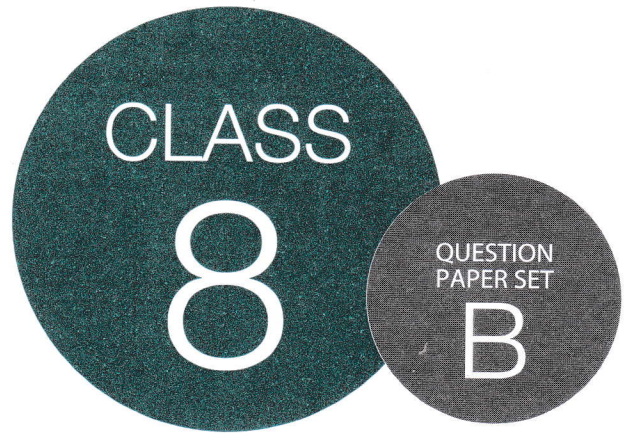


**SOF NATIONAL SCIENCE  
OLYMPIAD 2023-24**



**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.**

16. ● (B) (C) (D)

Name:.....

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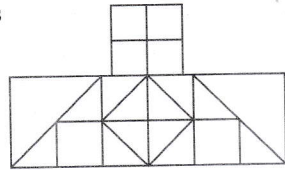
**5.6+ Crores**  
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## LOGICAL REASONING

1. If ' $\alpha$ ' stands for '+', ' $\beta$ ' stands for '+', ' $\%$ ' stands for '-1' and ' $\odot$ ' stands for ' $\times$ ', then find the value of  $28\beta 144\alpha 12\%6\odot 5$ .
- A. 10      B. 38      C. 70      D. 22

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

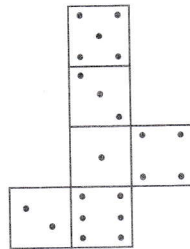
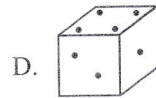
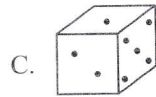
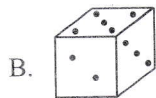
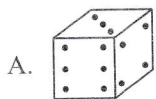


- A. 12  
B. 13  
C. 14  
D. More than 14

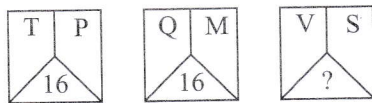
3. How many such pairs of letters are there in the word SURPRISE each of which has as many letters between them in the word as there are in the English alphabets?

- A. One                      B. Two  
C. Three                    D. More than three

4. Select a box from the options that is similar to the box formed when the given sheet of paper is folded to form a box.



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



- A. 11      B. 9      C. 21      D. 10

6. Select the correct mirror image of the combination of letters and symbols, if the mirror is placed vertically to the left.

#K@ \$HMIR

- A. ЯIMH? @X#      B. ЯIMH? @K#  
C. ЯIMH? X@#      D. #@\$KMHIR

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

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

'A ÷ B' means 'A is the brother of B'.

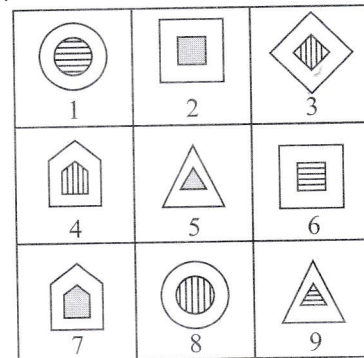
'A × B' means 'A is the father of B'.

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

Which of the following is incorrect for  $P \times S + T - V$ ?

- A. P is the brother-in-law of V  
B. T is the husband of P  
C. S is the son of V's sister  
D. S is the nephew of V

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



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

9. The following letters are coded as follows :

<b>Letters</b>	N	A	E	Y	M	G	U
<b>Codes</b>	@	4	#	*	6	%	5

While coding the given word, following conditions are also to be observed.

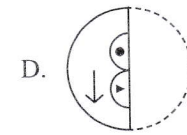
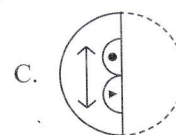
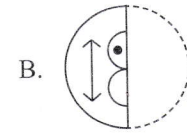
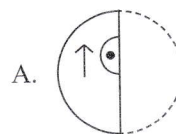
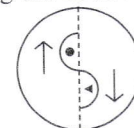
**Conditions :**

- (i) If the second letter is a vowel, then it is to be coded as >.  
(ii) If the first letter is a vowel and the last letter is a consonant, then both are to be coded as <.

What is the code for YAMUNA?

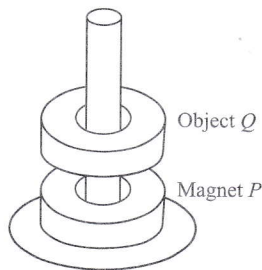
- A. <>65@<                      B. \*>65@4  
C. \*465@4                        D. \*>56@4

10. A circular transparent sheet with a pattern and a dotted line on it is given. Select a figure from the options as to how the pattern would appear when the transparent sheet is folded along the dotted line.



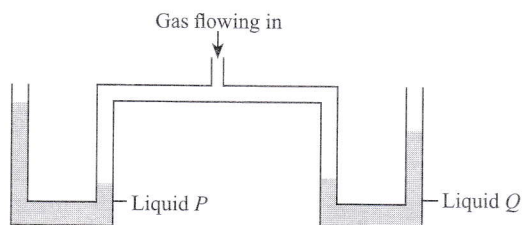
11. During an experiment, a student places magnet  $P$  on a stand and then slowly places object  $Q$  on top of it. He notices that object  $Q$  does not stick to the magnet  $P$  but floats above it as shown in the given figure.

Which of the following statements best explain(s) why object  $Q$  does not stick to magnet  $P$ ?



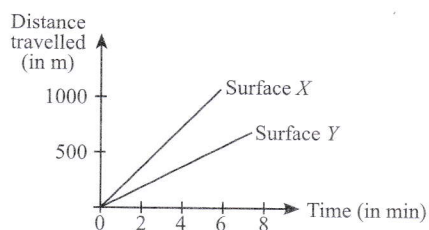
- (i) Object  $Q$  is made of steel and magnet  $P$  exerts repulsive force on magnetic materials like steel and iron.
  - (ii) Object  $Q$  is an electromagnet.
  - (iii) Object  $Q$  is a magnet and the like poles of object  $Q$  and magnet  $P$  are facing each other, thereby exerting a repulsive force between them.
- A. (iii) only                      B. (i) and (ii) only  
C. (i) and (iii) only            D. (ii) only

12. An apparatus is connected to a gas tap in order to measure the pressure of the gas as shown in the given figure. The tube contains liquid  $P$  and liquid  $Q$  at different ends of the tubes. Initially, the heights of the liquids were same.



As the gas has flown in, at steady state, the height of liquid  $Q$  exposed to air is lesser than that of liquid  $P$ . This is so because

- A. The density of liquid  $P$  is lesser than liquid  $Q$
  - B. The density of liquid  $Q$  is lesser than liquid  $P$
  - C. The pressure exerted on liquid  $Q$  by the gas is more than the pressure on  $P$
  - D. The density of both liquids is equal.
13. The given figure represents the distance-time graphs of a bicycle rolling on two surfaces  $X$  and  $Y$ .

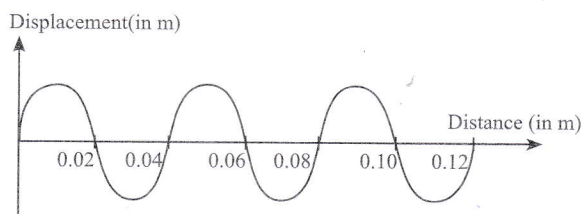


Which one of the following statements is correct about the surfaces  $X$  and  $Y$ ?

- A. Surface  $X$  produces more friction.
- B. Surface  $Y$  produces more friction.

- C. Both surfaces produce equal friction.
- D. Smoothness of surfaces does not affect friction.

14. A boy was playing with his trumpet facing a vertical wall. The displacement versus distance graph of sound particles along the direction of the sound wave propagation, as the wave passes through the air is shown here.



A person on the other side of the wall can hear the sound of the trumpet. Frequency of the sound heard by him is (Speed of sound in air is 320 m/s)

- A. 5200 Hz                      B. 3500 Hz
- C. 4200 Hz                      D. 8000 Hz

15. A loud speaker is connected to an audio frequency generator. The frequency of the generator is slowly increased and sound from the loudspeaker is first detected by an observer when the frequency is 20 Hz. The observer cannot hear sound of frequency higher than 20 KHz. The speed of sound in air is 340 m/s.

Now, read the given statements and select the option that correctly identifies them as true (T) and false (F) ones.

- (i) The shortest wavelength of the sound detected by the observer is 0.017 m.
- (ii) The longest wavelength of the sound detected by the observer is 17 m.
- (iii) Pitch increases as the frequency increases from 20 Hz to 20 KHz.
- (iv) Pitch decreases as the frequency increases from 20 Hz to 20 KHz.

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

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

**Statement 1 :** Current can produce or speed up chemical changes. This ability of current is called chemical effect of electric current.

**Statement 2 :** Solution of cane sugar allows electric current to pass through it.

- 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.

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

- (i) Like charges attract each other.
- (ii) A charged glass rod attracts a charged plastic straw.
- (iii) Lightning conductor cannot protect a building from lightning.
- (iv) Earthquakes can be accurately predicted in advance.

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

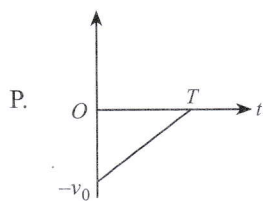
18. Five balls numbered 1 to 5 are suspended using separate threads. Pairs (1, 2), (2, 4), (4, 1) show electrostatic attraction while pairs (2, 3) and (4, 5) show repulsion. Then, ball 1 must be

- A. Neutral
- B. Negatively charged
- C. Positively charged
- D. None of these.

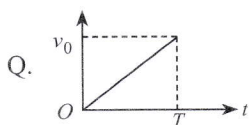
19. Study the following velocity ( $v$ ) - time ( $t$ ) graphs in column I carefully. Then, match column I with column II and select the correct option from the given codes. Assume that motion takes place in the time interval  $t = 0$  to  $T$ .

Column I

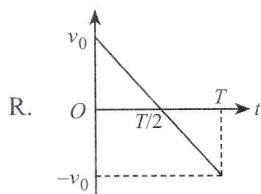
Column II



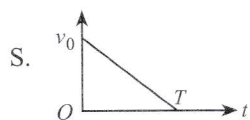
(i) Net displacement is positive but not zero.



(ii) Net displacement is negative but not zero.



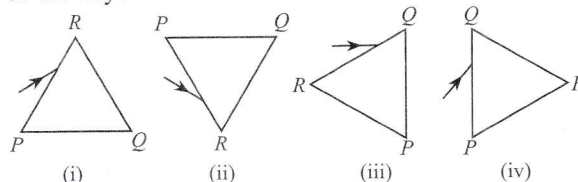
(iii) Particle returns to its initial position.



(iv) Acceleration is positive.

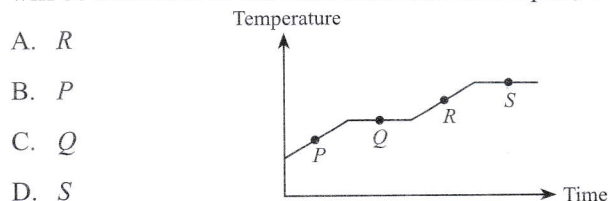
- A. P-(ii, iv), Q-(i, iv), R-(iii), S-(i)
- B. P-(i, iv), Q-(ii, iv), R-(iv), S-(iii)
- C. P-(iii, iv), Q-(i, iv), R-(ii), S-(ii)
- D. P-(i, iv), Q-(ii, iv), R-(i), S-(i)

20. A prism  $PQR$  (with base  $PQ$ ) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in the given figures. In which of the following cases, after passing through the prism, the third colour from the top corresponds to the colour of the sky?



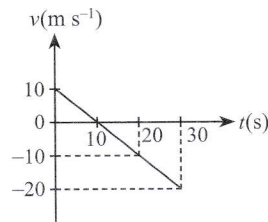
- A. (i) only
- B. (ii) only
- C. (i) and (iii) only
- D. (iv) only

21. A solid substance is placed in a boiling tube and heated steadily. The temperature-time graph of the substance is as shown in the given figure. The point at which there will be a mixture of the solid substance and liquid, is



22. The velocity ( $v$ ) - time ( $t$ ) graph of a particle moving on a straight line is depicted in the given figure.

Which of the following statements is/are correct?



- A. The particle has never turned around.
- B. The particle has zero displacement.
- C. The average speed in the interval 0 s to 10 s is same as the average speed in the interval 10 s to 20 s.
- D. Both A and B

23. The water heater of a shower is connected through circuit breaker. The purpose of the circuit breaker is

- A. To cut off the current when the shower is turned off
- B. To cut off the current when the water heater is switched off
- C. To cut off the current when there is a short circuit
- D. To cut off the current when the water reaches the preset temperature.

24. A pendulum  $X$  makes 30 complete oscillations in 15 seconds. If another pendulum  $Y$  makes 19 complete oscillations in 9 seconds then, select the incorrect statement(s).

- (i) The string of pendulum  $Y$  is longer than that of pendulum  $X$ .
- (ii) The angle of swing of release of pendulum changes its time period.
- (iii) Pendulum  $Y$  has a shorter period than pendulum  $X$ .
- (iv) The higher mass of the bob of pendulum corresponds to its lower time period.

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

25. A glass container having inner depth of 28 cm is kept on a table. A student starts pouring water ( $\mu = 4/3$ ) into it while looking at the surface of water from the above. When he feels that the container is equally filled and equally empty, he stops pouring water. Up to what height, the container is actually filled?  
A. 16 cm    B. 9.3 cm    C. 14 cm    D. 30 cm

26. Read the given statements carefully and select the correct option.

**Statement 1 :** Petrol condenses near the top of the fractionating column as compared to diesel oil.

**Statement 2 :** Petrol is more volatile than diesel oil.

- A. Both statement 1 and statement 2 are true and statement 2 is the correct explanation of statement 1.  
B. Both statement 1 and statement 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 statement 1 and statement 2 are false.

27. A brief description about four substances *W*, *X*, *Y* and *Z* is given as :

*W* : Used to treat basic nature of the soil.

*X* : Found in unripe mangoes.

*Y* : Used to relieve indigestion.

*Z* : Used to treat ant bite.

Which of the following best represents *W*, *X*, *Y* and *Z*?

	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>
A.	Slaked lime	Lactic acid	Quick lime	Baking soda
B.	Organic matter	Tartaric acid	Milk of magnesia	Calamine solution
C.	Nitric acid	Oxalic acid	Milk of magnesia	Calamine solution
D.	Lime water	Caustic potash	Soda water	Vinegar

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

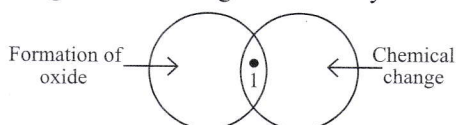
**Column I**

**Column II**

- |                               |                           |
|-------------------------------|---------------------------|
| P. Innermost zone of flame    | (i) Rapid combustion      |
| Q. Rusting of iron            | (ii) No combustion        |
| R. Burning of LPG             | (iii) Complete combustion |
| S. Non-luminous zone of flame | (iv) Slow combustion      |

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

29. Study the given Venn diagram carefully.



The point 1 represents

- A. Sublimation of camphor  
B. Rusting of iron nail  
C. Burning of magnesium ribbon  
D. Both B and C.

30. During refining of petroleum, various fractions are obtained. Some of these are listed below:

- (i) Petrol (ii) Heavy oil (iii) Kerosene (iv) Diesel (v) Petroleum gas

Arrange these fractions in decreasing order of their boiling points and select the correct option.

- A. (ii) > (iv) > (iii) > (i) > (v)  
B. (v) > (i) > (iii) > (iv) > (ii)  
C. (i) > (iii) > (v) > (ii) > (iv)  
D. None of the above is the correct order.

31. Classify the substances given in the box as combustible and non-combustible substances and select the correct option.

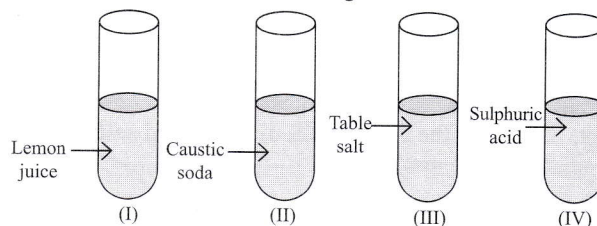
- (i) Glass (ii) Sand (iii) Petrol (iv) Coal  
(v) Water (vi) Camphor

**Combustible substances**

**Non-combustible substances**

- |                      |                        |
|----------------------|------------------------|
| A. (iii), (v), (vi)  | (i), (ii), (iv)        |
| B. (i), (ii), (v)    | (iii), (iv), (vi)      |
| C. (iv), (v)         | (i), (ii), (iii), (vi) |
| D. (iii), (iv), (vi) | (i), (ii), (v)         |

32. Ms. Meena, a science teacher demonstrated the effect of different indicators on the given solutions.



Select the incorrect statement(s) from the following.

- (1) China rose indicator turns green in test tube (III).  
(2) Turmeric indicator turns red in test tube (II).  
(3) Phenolphthalein indicator turns pink in test tube (IV).  
(4) Litmus solution turns red in test tube (I).  
A. 1, 3 and 4 only      B. 2 and 4 only  
C. 1 only      D. 1 and 3 only

33. Which of the following statements are correct?

- I. Non-renewable resources are those which once used up cannot be replaced within a reasonable period of time.  
II. Coal and natural gas are inexhaustible natural resources.  
III. CNG is more polluting than petrol.  
IV. The high temperature and high pressure inside the earth slowly converts the buried vegetation into coal.  
A. I and II only      B. II and IV only  
C. I, III and IV only      D. I and IV only

34.  $X$  is a kharif crop whereas  $Y$  is a rabi crop.  
Select the option that correctly identifies  $X$  and  $Y$ .

$X$	$Y$
A. Cotton	Mustard
B. Groundnut	Maize
C. Pea	Gram
D. Wheat	Paddy

35. Identify the agricultural implement shown in the given figure and select the correct statement regarding it.



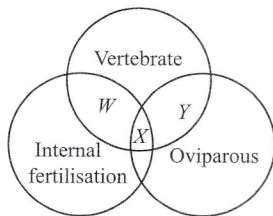
The given agricultural implement is used to

- A. Level the crop field for uniform distribution of water  
B. Remove the weeds manually  
C. Sow the seeds at proper distances  
D. Separate the grains from the chaff.
36. Rhizome is the main underground stem that bears buds which give rise to new plants. Rhizome is found in  
A. Ginger B. Garlic C. Onion D. Potato.

37. Which among the given pairs of microorganisms is involved in the production of cheese?  
A. *Penicillium*, *Gelidium*  
B. *Nostoc*, *Lactobacillus*  
C. *Streptococcus*, *Anabaena*  
D. *Lactobacillus*, *Streptococcus*

38. Select the incorrect match.  
A. Kanha National Park – Madhya Pradesh  
B. Kaziranga National Park – Assam  
C. Sunderbans National Park – West Bengal  
D. Gir National Park – Jharkhand

39. Refer to the given Venn diagram and select the correct option.



- A.  $W$  could be a whale whereas  $X$  could be a penguin.  
B.  $X$  could be a pigeon whereas  $Y$  could be a frog.  
C.  $W$  could be a bat whereas  $Y$  could be a salmon.  
D. All of these
40. Refer to the given analogy and select the option that correctly identifies  $X$ .

Cockroach : Uricotelic ::  $X$  : Ureotelic

- A. Frog  
B. Crocodile  
C. Toucan  
D. Snake

41. Which of the following groups represents the bacterial diseases?

- A. Cholera, Tuberculosis, Malaria, Measles  
B. Smallpox, Tuberculosis, Malaria, Typhoid  
C. Cholera, Tuberculosis, Typhoid, Measles  
D. Cholera, Anthrax, Tuberculosis, Typhoid

42. Read the given paragraph and select the option that correctly fills the blanks in it.

(i) is called the champion of migration because it makes the longest migration. This sea bird breeds in the (ii) hemisphere and spends winters in the (iii) hemisphere. By continuously moving between the summers of both hemispheres it sees more (iv) than any other animal.

- |    | (i)            | (ii)     | (iii)    | (iv)     |
|----|----------------|----------|----------|----------|
| A. | Siberian crane | Southern | Northern | Night    |
| B. | Arctic tern    | Northern | Southern | Daylight |
| C. | Arctic tern    | Southern | Northern | Night    |
| D. | Siberian crane | Northern | Southern | Night    |

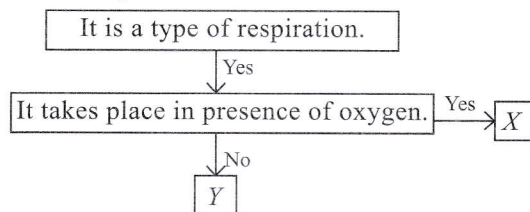
43. Food is first received by which chamber of stomach in ruminants?

- A. Reticulum  
B. Rumen  
C. Abomasum  
D. None of these

44. Which among the given processes does not belong to the primary treatment of wastewater?

- A. Formation of activated sludge by the action of aerobic bacteria.  
B. Separation of large solids using strainers.  
C. Settling of the suspended solids at the bottom of settlement tank.  
D. Removal of floating materials with the help of skimmer.

45. Refer to the given flow chart.



Identify  $X$  and  $Y$  and select the incorrect statement regarding them.

- A. During  $X$ , food is completely broken down to produce carbon dioxide, water and energy.  
B.  $Y$  leads to the formation of acetic acid in muscles.  
C. More energy is released during  $X$  as compared to  $Y$ .  
D.  $Y$  takes place in organisms like yeast, bacteria and parasitic flatworms.

## ACHIEVERS SECTION

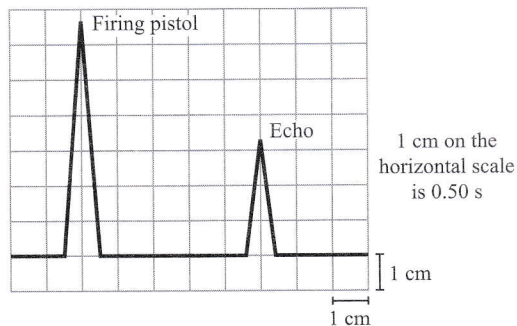
**Direction (Q. No. 46 and 47) :** Refer to the given paragraph and answer the following questions.

Ankit suggested calculating the speed of sound using the

following setup. He stands at 400 m from a large wall and fires the starting pistol. Another student next to him starts the stopwatch when she hears the starting pistol and stops

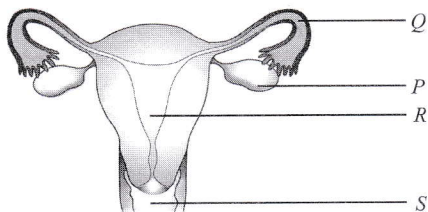
the stopwatch when she hears the echo. The reading she has taken after Ankit conducted the experiment three times are 2.42 s, 2.53 s and 2.52 s.

46. In accordance with the experiment, the average speed of the sound is  
 A.  $330 \text{ m s}^{-1}$                       B.  $341 \text{ m s}^{-1}$   
 C.  $321 \text{ m s}^{-1}$                       D.  $350 \text{ m s}^{-1}$
47. A data logger of this experiment is depicted in the given graph.



Which of the following statements are correct?

- (i) The shorter height of echo is due to loss of energy of sound wave during reflection from the wall.  
 (ii) The shorter height of echo sound wave is due to loss of energy of sound during transmission through air.  
 (iii) The speed of sound calculated by data logger is  $300 \text{ m s}^{-1}$ .  
 (iv) The speed of sound calculated by data logger is  $320 \text{ m s}^{-1}$ .
- A. (i), (iii) and (iv) only    B. (i), (ii) and (iii) only  
 C. (ii), (iii) and (iv) only    D. (i), (ii) and (iv) only
48. Refer to the given figure of female reproductive system and read the following statements regarding labelled parts *P-S*.



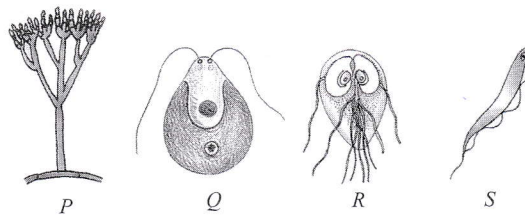
- (i) *Q* is generally the site of implantation and zygote formation whereas *R* is also known as womb and it is the place where embryo grows and develops.

- (ii) *P* is located in the lower abdominal cavity whereas *S* receives the penis during sexual intercourse.  
 (iii) *R* is a pear-shaped, muscular chamber which produces estrogen whereas pituitary gland stimulates *P* on puberty to secrete sex hormones.  
 (iv) *S* is a wide muscular tube which acts as a birth canal whereas *Q* carries the ovum released by *P*.

Now, select the correct statements regarding *P-S*.

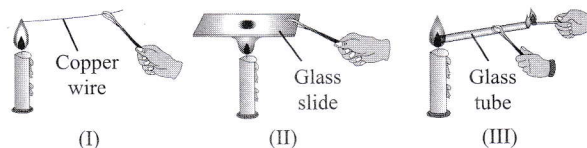
- A. (i) and (iii) only                      B. (ii) and (iv) only  
 C. (i), (ii) and (iv) only                D. (i), (ii) and (iii) only

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



- A. Organism *P* is parasitic whereas organisms *Q*, *R* and *S* are saprophytic in nature.  
 B. Organism *Q* reproduces only sexually whereas organisms *P*, *R* and *S* reproduce asexually only.  
 C. Organism *P* is multicellular whereas organisms *Q*, *R* and *S* are unicellular.  
 D. Cell wall is present in *Q* whereas it is absent in *P*, *R* and *S*.

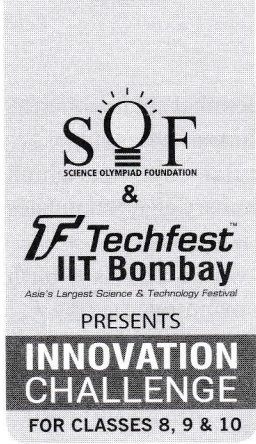
50. Observe the given figures carefully.



Read the given statements and select the correct one(s).

- (1) Figure (I) represents the zone of highest temperature.  
 (2) Figure (III) represents the middle zone of incomplete combustion.  
 (3) Figure (II) represents the luminous zone of unburnt carbon particles.  
 (4) In figure (II), a circular dark ring is formed on the slide due to rise of unburnt wax vapours.
- A. 4 only                                      B. 1 and 3 only  
 C. 2 and 4 only                              D. 1, 2, 3 and 4

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](mailto:ic.iitbombay@sofworld.org).
- Answers should be submitted as per the following schedule:

<b>NSO Set-A</b> 17 <sup>th</sup> October	<b>NSO Set-B</b> 21 <sup>st</sup> November	<b>NSO Set-C</b> 5 <sup>th</sup> December
By 22 <sup>nd</sup> October	By 26 <sup>th</sup> November	By 10 <sup>th</sup> 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 27<sup>th</sup> to 29<sup>th</sup> 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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