![kamp logo](KNOWLEDGE & AWARENESS MAPPING PLATFORM)

GRADE 8

NATIONAL ASSESSMENT FOR SCIENTIFIC TEMPERAMENT AND APTITUDE
(NASTA 2019)

WORKBOOK

UNLOCK THE HIDDEN SCIENTIST IN YOUR CHILD WITH KAMP

WHY SCIENTIFIC TEMPERAMENT IS IMPORTANT FOR YOUR CHILD?

Scientific temperament refers to an individual's attitude of logical and rational thinking. An individual is considered to have scientific temper if s/he employs a scientific method of decision-making in everyday life. The term was first coined by India's first Prime Minister, Jawaharlal Nehru, in his book 'The Discovery of India'.

"A Statement on Scientific Temper" prepared by a group of scholars and issued on behalf of the Nehru Centre, Bombay, in July 1981, mentions that "Scientific Temper involves the acceptance, amongst others, on the following premises:

1.   The method of science provides a viable method of acquiring knowledge;

2.   The human problems can be understood and solved in terms of knowledge gained through the application of the method of science;

3.   The fullest use of the method of science in everyday life and in every aspect of human endeavour from ethics to politics and economics is essential for ensuring human survival and progress; and

4.   That one should accept knowledge gained through the application of the method of science as the closest approximation of truth at that time and question what is incompatible with such knowledge; and that one should from time to time re-examine the basic foundations of contemporary knowledge."

NATIONAL ASSESSMENT FOR SCIENTIFIC TEMPERAMENT AND APTITUDE (NASTA)

National Assessment for Scientific Temperament and Aptitude (NASTA) is designed and developed for the elementary to middle school students. It is an Attribute Based assessment as against only Subject Based Assessment.

NASTA ASSESSMENT PARAMETERS

PARAMETERS	CONTEXT
Observation and Precision	Students need to be able to develop the most basic skill in science done by using our five senses in surrounding environment. After making observations it is important to group objects according to a purpose. Measuring is important in collecting, comparing, and interpreting data.
Imagination, Creativity and Innovation	Students need to be able to think and work creatively in both digital and non-digital environments to develop unique and useful solutions.
Critical Thinking and Problem Solving	Students need the ability to think critically, which includes proficiency with comparing, contrasting, evaluating, synthesizing, and applying without instruction or supervision. Students need the ability to solve complex problems in real time.
Prediction and Interpretation	Students should be able to predict and interpret situation, events, findings based on multiple observations. An inference is a link between what is observed and what is already known. Whereas, prediction is an educated guess based on good observations and inferences about an observed event or prior knowledge.
Communication and Collaboration	Students must possess the ability to collaborate seamlessly in both physical and virtual spaces, with real and virtual partners globally. Students must be able to communicate not just with text or speech, but in multiple multimedia formats. They must be able to communicate visually through video and imagery as effectively as they do with text and speech.
Social Skills and Empathy	This includes adaptability, fiscal responsibility, personal accountability, environmental awareness, empathy, tolerance, and global awareness.

IMPORTANCE OF ASSESSMENT PARAMETERS

PARAMETERS	DEFINITION AND IMPORTANCE
Observation and Precision	Scientific observation is the central element of scientific method or process. One of the core skills of a science enthusiast is to make observation. Precision and accuracy are two important factors during the course of scientific measurements. Precision is how consistent results are when measurements are repeated.
Imagination, Creativity and Innovation	Imagination is about seeing the impossible, or unreal. Creativity is using imagination to unleash the potential of existing ideas in order to create and valuable ones. Innovation is taking existing, reliable systems and ideas and improving them. These skills serve as an important backbone while solving problems.
Critical Thinking and Problem Solving	Critical thinking and problem solving refer to the ability to use knowledge, facts, and data to effectively solve problems. Scientific scenarios require one to assess the environment, analyze a situation, design a solution, and ultimately win in a competitive scenario. Both critical thinking and creative thinking serve as important pillars for design thinking.
Prediction and Interpretation	A prediction, or forecast, is a statement about a future event. A prediction is often, but not always, based upon experience or knowledge. Interpretation on the other hand is the act of explaining, reframing, or otherwise showing your own understanding of something. Scientific skillsets require honing of both predictability and interpretability skills to extrapolate findings or provide plausible reasons for an observation.
Communication and Collaboration	Collaboration and communication are interpersonal skills that help people work well with one another. These skills involve being able to read the vast number of verbal and nonverbal cues that we all use to communicate our ideas and emotions. In today's working environment, it is important that we proactively share ideas and knowledge to solve the complex and challenging problems that we encounter.
Social Skills and Empathy	Empathy and social skills allow us to function cohesively. We are continuously working towards examining and improving our world. While doing so, we end up judging or critically evaluating others. Empathy and social skills help us to be open-minded and develop a balance between self-confidence and understanding different perspectives.

CONTENTS

KNOWLEDGE & AWARENESS MAPPING PLATFORM
OMR ANSWER SHEET - NASTA 2019

Use HB PENCIL / BALL POINT PEN (BLUE / BLACK) to write and darken the circles.

CORRECT METHOD / सही तरीका ●   WRONG METHODS / गलत तरीके ✗ ⊘ ⊙ ◑

SCHOOL

KULDEEP INTERNATIONAL

PARTICIPANT'S NAME

AMIT

100001

CLASS	SCHOOL CODE	Roll No.	ENROLLMENT NO.
5	10672 - Paper-1	19100001	1910015947

MARK YOUR ANSWERS WITH HB PENCIL / BALL POINT PEN (BLUE / BLACK)

Qno.	A	B	C	D	Qno.	A	B	C	D	Qno.	A	B	C	D	Qno.	A	B	C	D
1	○	○	○	○	16	○	○	○	○	31	○	○	○	○	46	○	○	○	○
2	○	○	○	○	17	○	○	○	○	32	○	○	○	○	47	○	○	○	○
3	○	○	○	○	18	○	○	○	○	33	○	○	○	○	48	○	○	○	○
4	○	○	○	○	19	○	○	○	○	34	○	○	○	○	49	○	○	○	○
5	○	○	○	○	20	○	○	○	○	35	○	○	○	○	50	○	○	○	○
6	○	○	○	○	21	○	○	○	○	36	○	○	○	○	51	○	○	○	○
7	○	○	○	○	22	○	○	○	○	37	○	○	○	○	52	○	○	○	○
8	○	○	○	○	23	○	○	○	○	38	○	○	○	○	53	○	○	○	○
9	○	○	○	○	24	○	○	○	○	39	○	○	○	○	54	○	○	○	○
10	○	○	○	○	25	○	○	○	○	40	○	○	○	○	55	○	○	○	○
11	○	○	○	○	26	○	○	○	○	41	○	○	○	○	56	○	○	○	○
12	○	○	○	○	27	○	○	○	○	42	○	○	○	○	57	○	○	○	○
13	○	○	○	○	28	○	○	○	○	43	○	○	○	○	58	○	○	○	○
14	○	○	○	○	29	○	○	○	○	44	○	○	○	○	59	○	○	○	○
15	○	○	○	○	30	○	○	○	○	45	✗	○	○	○	60	○	○	○	○

FILL UP THE CONTACT DETAILS BELOW

MOTHER'S / FATHER'S NAME

EMAIL ID

MOBILE NO. + 9 1

DATE OF EXAMINATION
D D - M M - Y Y Y Y

SIGN OF THE PARTICIPANT
TO BE SIGNED BY STUDENT ONLY

SIGNATURE OF THE INVIGILATOR

1. **Rhizobium lives in _____ of leguminous plants**
   [A] Root   [B] Branches
   [C] Leaves   [D] Stem

2. **Which of the following are the properties of Silver**
   [A] Ductility   [B] Malleability
   [C] Both A & B   [D] Only A

3. **Look at the images given below and identify in which case is the force applied equals to zero?**

   [A]   [B]

   [C]   [D]
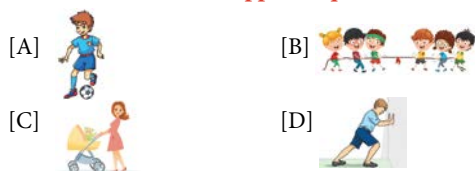
4. **To every action there is always an equal and opposite reaction. Which of the following statements is correct regarding this?**
   [A] The buggy pulls the horse backward just as hard as the horse pulls the buggy forward. Both of them would not move forward if surface is frictionless.
   [B] The horse pulls the buggy forward slightly harder than the buggy pulls the horse backward, so they move forward.
   [C] The horse can pull the buggy forward only if the horse weighs more than the buggy.
   [D] None of these

5. **Ritu was observing a slide under the microscope. She observed a long cell which had branching and tiny endings. Which of the following she observed?**
   [A] Muscle Cell   [C] White Blood Cell
   [B] Red Blood Cell   [D] Nerve Cell

6. **A student made four combination of cell organelles found in an animal cell. Which of the following is the right combination?**
   A) Cell wall, plastid, dictyosome
   B) Cell Wall, cell membrane, golgi apparatus
   C) Cell membrane, mitochondria, golgi apparatus
   D) Plastids, cell membrane, mitochondria
   [A] A   [B] Both A and B

[C] C   [D] Both C and D

7. **If you are preparing a report about chromosomes, which of the following would not be part of your report?**
   [A] The chromosomes carry genes.
   [B] Chromosomes are round sturctures.
   [C] Chromosomes loosen up when cell division takes place.
   [D] Chromosomes are present in the nucleolus.

8. **Which of the following is NOT an example of eukaryotes?**
   [A] blue-green algae   [B] onion cell
   [C] cheek cell   [D] muscle cell

9. **Why is it difficult to move the box from rest than when it is already in motion?**
   [A] Because sliding friction is greater than the rolling friction.
   [B] Because static friction is greater than the rolling friction.
   [C] Because static friction is greater than the sliding friction.
   [D] Because sliding friction is greater than the static friction.

10. **Ravi's teacher gives him an electric circuit as shown below and asks him to draw the circuit diagram for the circuit.**
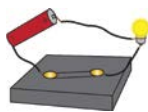
    He makes the diagram as given below:

    Which electric component does Ravi miss while drawing the circuit diagram?
    [A] Battery   [B] Switch
    [C] Bulb   [D] Cell

11. **Look at the circuit diagram below:**
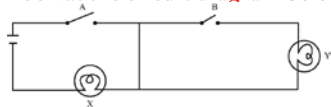
Which bulb will glow if switch B is turned ON?
[A] Neither bulb X nor bulb Y
[C] Only bulb X
[B] Both bulbs X and Y
[D] Only bulb Y

12. **Ramesh's father is setting up a water treatment plant. He brought something like this from the market. In which of the following tank will he fit this in?**

[A] Sand removal tanks   [B] Screening tank
[C] Sludge removal tank   [D] Aeration tank

13. **Look at the image and identify the correct name of this structure commonly found in forests.**

[A] Reserve   [B] Tree layers
[C] Tall trees   [D] Canopy

14. **Read the given statements and select the correct option.**
    Statement 1: Sound would travel faster on a hot summer day than on a cold winter day.
    Statement 2: Velocity of sound depends on temperature.
    [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 and statement 2 is false.
    [D] Both statements 1 and 2 are false.

15. **Which of the following factors are utilized to increase food production and to meet the demand of an increasing population?**
    [A] Practicing efficient land management and development.
    [B] Continuous research to ensure sustainable development.
    [C] Using more pesticides to control pests.
    [D] Both (A) and (B)

16. **A matchstick catches fire when struck against the rough surface of the box primarily because of**
    [A] inflammatory material on the rough surface
    [B] Frictional heat
    [C] Electric charge
    [D] Latent heat

17. **The loudness of sound depends primarily on its:**
    [A] amplitude   [B] source
    [C] frequency   [D] its time period

18. **A fluid exerts pressure in**
    [A] In all directions and on the walls of the container
    [B] In one direction only
    [C] Only on the walls of the container
    [D] In two opposite directions

19. **Most liquids conduct electricity primarily because of**
    [A] Fluid pressure
    [B] Presence of molecules
    [C] Presence of ions in them
    [D] High temperature

20. **If two electrons are brought closer to each other, they will**
    [A] Attract each other
    [B] Not attract or repel each other
    [C] Repel each other
    [D] Repel each other only when close to each other

21. **The range of audible frequency for human ear is**
    [A] 200-20000Hz
    [C] 2Hz-2KHz
    [B] 100 Hz
    [D] 20 Hz-20KHz

22. **Tropical cyclones generally form in the oceans over**
    [A] Only over the equator
    [B] Near the equator but not over the equator
    [C] Both over and near the equator
    [D] Far away from the equator

23. **Compared to wood,**
    [A] some metals are better conductor of heat
    [B] All metals are poor conductor of heat
    [C] No metal is better conductor of heat
    [D] All metals are better conductor of heat

24. **Fungi are**
    [A] Always unicellular, prokaryotic
    [B] unicellular or multicellular, eukaryotic
    [C] Always multicellular, eukaryotic
    [D] unicellular or multicellular, prokaryotic

1. **Natural vegetation is classified as forest, grasslands and**
   [A] Herbs   [B] Shrubs
   [C] Trees   [D] Creepers

2. **Tropical Evergreen Forest are found near**
   [A] Polar Regions   [B] Sea
   [C] Equator   [D] Hilly Region

3. **Which of the following forest is called "Lungs of the World"**
   [A] Forest in Australia
   [B] Forest in Africa
   [C] Rainforest of India
   [D] Tropical Evergreen forest of Brazil

4. **What is coniferous forest called?**
   [A] Tropical decidious Forest
   [B] Taiga
   [C] Tropical Evergreen Forest
   [D] none of the above

5. **Coal tar is used in manufacture of**
   [A] Synthetic dyes
   [B] Drugs
   [C] Explosives
   [D] All of these

6. **PCRA stands for**
   [A] Pollution control research association
   [B] Petroleum conversation research association
   [C] Petroleum control research association
   [D] Petrol coal research assocation

7. **The atmosphere of the earth is heated by radiations which are mainly**
   [A] radiated by the sun
   [B] re-radiated by land
   [C] re-radiated by water
   [D] re-radiated by land and water

8. **What would happen , if all the oxygen present in the environment is converted to ozone?**
   [A] We will be protected more
   [B] it will become poisonous and kill living forms
   [C] Ozone is not stable , so it will be toxic
   [D] It will help harmful sun radiations to reach earth and damage many living forms.

9. **Growth of Lichens on barren rocks is followed by the growth of**
   [A] moss   [C] gymnosperms
   [B] ferns   [D] algae

10. **Low visibility during cold weather is due to**
   [A] Formation of fossil fuel
   [B] unburnt carbon particles or hydrocarbons suspended in air
   [C] lack of adequate power supply
   [D] none of these

11. **Which of the following is a recently originated problem of environment?**
   [A] Ozone layer depletion
   [B] Green house effect
   [C] Global warming
   [D] All of these

12. **Maximum consumption of natural rubber is made of**
   [A] Auto tyres and tubes   [B] Footwear
   [C] Beats and hoses   [D] Dipped goods

13. **Yellow Vein Mosaic is a serious disease of**
   [A] Brinjal   [B] Okra
   [C] Pea   [D] Cabbage

14. **Which of the following mango varieties has been developed as a result of cross between Dasheri and Neelam?**
   [A] Chausa   [B] Mallika

[C] Alphanso [D] Amrapali

15. All minerals on earth are
[A] inexhaustible
[B] Some are inexhaustible
[C] All are exhaustible
[D] Only some are exhaustible

16. Horticulture refers to
[A] Desert agriculture
[B] Growing of fruits and vegetables
[C] Primitive agriculture
[D] Farming of animals

17. India is ---- in human resource
[A] poor
[B] Very poor
[C] rich
[D] Moderately poor

18. Nuclear power plants
[A] Do not generate any toxic waste
[B] Generates toxic waste only occasionally
[C] Generates toxic waste regularly
[D] Generates only non-toxic waste

19. Success of Agriculture in India strongly depends on
[A] Monsoon rainfall
[B] Himalayan snowfall
[C] Wind energy
[D] Govt. Subsidy

20. A primary input for textile industry in India is
[A] Plastic [B] Cotton
[C] Jute [D] Grass

21. An example of a source of renewable energy is
[A] Minerals [B] Tidal Energy
[C] Coal [D] Natural Gas

✳ ✳ ✳

1. **Ram, Naresh, Neha and Vjay invested a certain amount in a company. At the end of year they received profit as 5^4, 4^5, 3^6, 2^7 respectively. Who received the highest profit and who received the lowest?**
   [A] Ram highest and Vijay Lowest
   [B] Naresh highest & Neha Lowest
   [C] Vijay highest & Neha Lowest
   [D] Naresh highest & Vijay Lowest

2. **Arrange following numbers in ascending order 4^5, 7^4, 9^3, 5^6**
   [A] $4^5<5^6<7^4<9^3$ [B] $9^3<4^5<7^4<5^6$
   [C] $9^3<7^4<4^5<5^6$ [D] $7^4<9^3<5^6<4^5$

3. **Simplify and write answer in exponential form**
   $$\frac{(25)^6}{(5)^4}$$
   [A] 5^8 [B] 20^4
   [C] 20^2 [D] 25^{10}

4. **Simplify : $\dfrac{8^4 \times 9^3 \times 4}{4^3 \times 4^2 \times 18}$**
   [A] 358   [B] $2^3 \times 3^2$
   [C] 648   [D] $2^5 \times 3^3$

5. **Vicky was at a play area. Children were trying to make a 3D solid figure out of net provided to them. Vicky got the following net as shown below. Can you identify the resultant figure.**
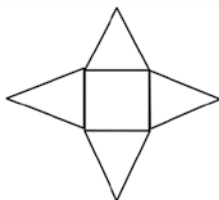
   [A] Triangle   [B] Pyramid
   [C] Square   [D] Cuboid

6. **Aman has 28 gift boxes each in the shape of a cube of side length 12 cm. He packs some of them in a carton shown below such that no space is left inside the carton.**
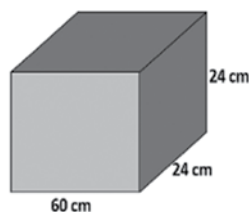
   How many gift boxes are left outside after he finishes arranging the boxes in the carton?
   [A] 0   [B] 6
   [C] 8   [D] 10

7. **Ravi placed three cubes each of size 3cm by 3 cm by 3cm side by side. What would be the dimensions of the resultant cuboid?**
   [A] 9cm by 9cm by 9cm
   [B] 3cm by 3cm by 3cm
   [C] 9cm by 3cm by 3cm
   [D] 9cm by 6cm by 3cm

8. **Which expression is equivalent to $\dfrac{1}{5} + \left(\dfrac{3}{5} + \dfrac{4}{15}\right)$?**
   [A] $\dfrac{3}{25} + \dfrac{4}{15}$ [B] $\dfrac{4}{5} + \dfrac{4}{15}$
   [C] $\dfrac{3}{25} \times \dfrac{4}{15}$ [D] $\dfrac{3}{25} \times \dfrac{4}{75}$

9. **The area of trapezium shown below is 80 cm².**
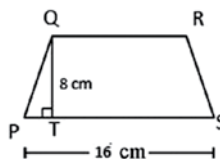
   What is the length of side QR?
   [A] 10   [C] 6
   [B] 8   [D] 4

10. The volume of a cuboids is 432cm³ and base area is 48cm². What is the height of the cuboid?
    [A] 6 cm
    [B] 7 cm
    [C] 8 cm
    [D] 9 cm

11. What will be obtained when $\frac{-1}{3}$ is added to the sum of the rational number $\frac{1}{3}$ and its reciprocal.
    [A] 9
    [B] 3
    [C] 6
    [D] $\frac{10}{3}$

12. Which of the following is equal to –432 ?
    [A] $(2)^4 \times (3)^3$
    [B] $(2)^3 \times (3)^4$
    [C] $(-2)^3 \times (3)^4$
    [D] $(-2)^3 \times (-3)^4$

13. A teacher asked the students to express 1323 as the product of the powers of the prime factors. Below are the responses of four students.
    Student A: $3^3 \times 7^2$
    Student B: $3^2 \times 7^3$
    Student C: $3^3 \times 7^2$
    Student D: 3×7^3
    Who is correct?
    [A] Student A
    [B] Student B
    [C] Student C
    [D] Student D

14. Which of the following equations shows that rational numbers are commutative under multiplication?

    [A] $\frac{2}{15} \times \frac{7}{20} = \frac{7}{150}$

    [B] $\frac{2}{15} \times \frac{7}{20} = \frac{7}{20} \times \frac{2}{15}$

    [C] $\frac{2}{15} \times \left(\frac{7}{20} \times \frac{13}{18}\right) = \left(\frac{2}{15} \times \frac{7}{20}\right) \times \frac{13}{18}$

    [D] $\frac{2}{15} \times \left(\frac{7}{20} + \frac{13}{18}\right) = \left(\frac{2}{15} \times \frac{7}{20}\right) + \left(\frac{2}{15} \times \frac{13}{18}\right)$

15. Based on the number line shown below, select the
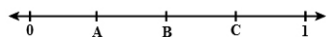
    [A] $\frac{1}{5}$ is a rational number lies between A and B.

    [B] $\frac{13}{20}$ is a rational number lies between B and C.

    [C] $\frac{3}{5}$ is a rational number lies between A and B.

    [D] $\frac{19}{20}$ is a rational number lies between B and C.

16. One of the parallel sides of a trapezium is 3 inches more than the other and the two non parallel sides are 12 inches each. If the perimeter of the trapezium is 47 inches and the height of the trapezium is 4 inches, what is the area, in square inches, of the trapezium?
    [A] 184
    [B] 92
    [C] 46
    [D] 23

17. A rectangular piece of paper 44 cm × 7 cm is folded without overlapping to make a cylinder of height 7 cm. What would be the volume, in cm3, of the cylinder?
    [A] 2156
    [B] 1078
    [C] 539
    [D] 308

18. The value of 10000 =
    [A] 0
    [B] 1
    [C] 1000
    [D] 100

19. The parallel sides of a trapezium measure 12 cm and 20 cm. Calculate its area if the distance between the parallel lines is 15 cm, the area of the trapezium is
    [A] 144 cm sq
    [B] 330 cm sq
    [C] 400 cm sq
    [D] 660 cm sq

20. Consider the data: -4, 25, 4, 11, 125. The range of the data is
    [A] 121
    [B] 125
    [C] 100
    [D] 129

21. A cuboid has a base area of 180 cm² and volume is 900 cm3. Its height is
    [A] 25 cm
    [B] 500 cm
    [C] 5 cm
    [D] 50 cm

22. Consider the following observations in a data
    x, v, y, z, y, x, v,z,v,x,y, v.
    The data with the highest frequency is
    [A] v
    [B] z
    [C] x
    [D] y

23. The primary tools for analysis of data is
    [A] Number theory
    [B] Statistical methods
    [C] Geometric methods
    [D] Algebraic methods

24. Processing of Large volumes of data require
    [A] Computer storage and computing facility
    [B] Sufficient paper
    [C] Powerful calculator
    [D] Computer storage and computing facility

1. **How can you open a link in a new browser window?**
    [A] < a href = "url" target = "new">
    [C]
    [B]
    [D]

2. **What happens if you click "B"?**

    [A] Adds layer styles/effects, such as bevel and emboss or drop shadow
    [C] Creates a new layer
    [B] Deletes a layer
    [D] Shows/Hides a layer

3. **Which of the following features is/are supported by the EPS file format?**
    [A] It supports the Grayscale and Bitmap color modes
    [B] It supports the Clipping paths
    [C] It supports the Support Alpha Channels
    [D] Both A and B

4. **In Photoshop, Navigator panel being dragged out to new dock is indicated by_____**

    [A] blue vertical highlight
    [B] red highlighted outline
    [C] the arrow pointer
    [D] None of these

5. **How many types of heading tags does HTML contain?**
    [A] 4   [B] 6
    [C] 8   [D] 10

6. **Ravi wants to display the below webpage of a website "www.javapoint.com" in a small box in his newly created webpage "test.html". Which of the following HTML code should Ravi use?**

    [A] <!DOCTYPE html>
        <html>
        <body>
        <h2>HTML example</h2>
        <p>JavaPointWebPage</p>
        <iframe src="https://www.javatpoint.com/"
        height="300" width="400"></iframe>
        </body>
        </html>
    [B] <!DOCTYPE html>
        <html>
        <body>
        <h2>HTML example</h2>
        <p>JavaPointWebPage</p>
        <imgsrc="https://www.javatpoint.com/"
        height="300" width="400" />
        </body>
        </html>

[C] ```
<!DOCTYPE html>
<html>
<body>
<h2>HTML example</h2>
<a href="https://www.javatpoint.
com/">JavaPoint WebPage
</body>
</html>
```

[D] ```
<!DOCTYPE html>
<html>
<body>
<h2>HTML example</h2>
<p>JavaPointWebPage</p>
<a href="https://www.javatpoint.com/"><img
src="https://www.javatpoint.com/"
height="300" width="400" /></a>
</body>
</html>
```

7. Which of the following is called an empty element?
[A] <img /> [B] <body>
[C] <hr> [D] <empty>

8. Vishal is using an html code for making an image as a link for another web page. What command should he write in the program?
[A] <A href = "kamp,html" IMG src = "kamp. gif"></A>
[B] <A href = "kamp.html"><IMG src = "kamp. gif"></A>
[C] <A href = "kamp, html" <IMG src> = < "kamp. gif">
[D] <A href = "kamp. html"><1MG>src = <kamp. gif>

9. In flowcharts, a shape that can represent two different conditions is known as?
a) Rectangle　　　**b) Diamond**
c) Circle　　　**d) Parallelogram**
[A] Circle [B] Diamond
[C] Parallelogram [D] Rectangle

10. Ajay was writing a code in HTML. Which character will he use to end the tag of HTML?
[A] / [B] \
[C] ! [D] ?

11. Which attribute is missing in the following HTML code to get the webpage showing as below?

An initiative of CSIR-NISTADS

About KAMP

```
<p _____="About KAMP">An initiative of
CSIR-NISTADS.</p>
```
[A] Title [B] Class
[C] Div [D] None of these

12. Varun has been given an assignment to write html code for the creation of table. But he made a mistake in his program. Identify the error?
```
<HTML>
<HEAD>
<TITLE>
creating a table
</TITLE>
</HEAD>
<BODY>
<TABLE BORDER = "5" WIDTH = "100%">
<TR><TH> class </TH><TH> time </
    TH><TR><TD> computer science </
    TD><TD> 10:00 </TD></TR></TABLE></
    BODY></HTML>
```
[A] The attributes of table should be defined separately.
[B] The OFF tag for <BODY> should be given before the <TABLE> tag.
[C] The OFF tag for <HEAD> should be given at the end.
[D] After giving the headings, <TR> tag is not OFF

13. What happens in HTML, if the background image is smaller than the screen?
[A] Image is stretched
[B] It will leave a blank space at the bottom of your page.
[C] It will be repeated.
[D] It will be placed at the centre of the page.

14. How can you make an e-mail link?
[A] <mail href +"xxx@y.com">
[C] <a href ="mail to: xxx@y.com">
[B] <a href = "xxx@y.com">
[D] Both (b) and (c)

15. Rahul wish to write a large heading in HTML code. Which of the following tags will he use to insert largest heading ?
[A] <h1> [B] <hb>
[C] <h2> [D] <h6>

16. Which feature is used to frame the spaces between cell wall and the cell data in HTML?
[A] Cell spacing [B] Cell padding
[C] Cell ruling [D] Cell width

17. In HTML, vertical frames in the browser window are defined by ?
[A] Frame attribute [B] Column attribute
[C] Cols attribute [D] Height attribute

18. Teacher asked Radha to spot the active link on a webpage. By which of the following options, Radha could identify the active link in HTML?
[A] Colour of the link is red
[B] The link is underlined
[C] Both A & B [D] None of these

19. An unvisited weblink in HTML is always?
[A] red and underlined.
[B] purple and underlined
[C] blue and underlined [D] None of these

20. Which symbols of flowchart I will not use if I want to find Perimeter of rectangle.Input: Two numbers l and b. Output: Result l×b

[A]   [B]

[C]   [D]

21. Which HTML attribute will be used to merge the two columns shown in the below table.

Month	Savings
January	100
February	80
Sum:180	

[A] Rowspan [B] img
[C] Image [D] Colspan

22. 1.Coffee
- **Cold**
- **strong**
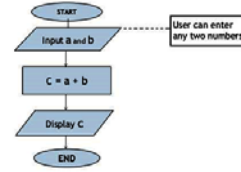
2. Tea
- **Black tea**
- **Green tea**

3. Milk
Which type of list is shown in above example in context of html?
[A] Nested list [B] Define list
[C] Data list [D] List of items

23. Which symbol of flowchart is shown by arrow?

Example 1: Flowchart add sum of two numbers
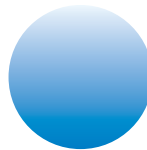
[A] Input [B] Output
[C] Process [D] Decision

24. The _____ tool selects areas of similar colors.
[A] Lasso [C] Move
[B] Magic wind [D] Marquee

25. Which attribute of font tag I will be using if I want the document to be displayed in "Arial" font and text with "red color".
[A] Name, color [B] Size, color
[C] Color, face [D] Color, name

26.

Which fill option of Photoshop is used to create above shown image?
[A] Gradient Tool [B] Solid fill
[C] Paint Bucket tool [D] None of these

27. Which of the following tool is not part of shape tool of Photoshop?
[A] Rectangle tool
[C] Circle tool
[B] Polygon tool
[D] Rounded rectangle tool

28. Which tag of HTML will use to create the following output.

Heading 1
Heading 2
Heading 3
Heading 4

Heading 5

Heading 6

[A] <H1> to <H6> [B] <Title>
[C] <caption> [D] None of these

29. **Which attribute of img tag is used to define location of image?**
    [A] Source   [B] src
    [C] Alt   [D] URL

30. **Which of the following are supported image formats for creating webpage?**
    [A] .jpg,.png,.bmp   [B] .mov,mp4,.jpg
    [C] .jpg,mp3,.xls   [D] .bmp,.png,.mpeg

31. **In computer science, flowchart refers to a pictorial representation of**
    [A] Input   [B] Output
    [C] An algorithm   [D] Data

32. **In computer science, algorithm refers to**
    [A] A general description of the problem
    [B] Syntax of a program
    [C] A Computer Code
    [D] a special method for the solution to a problem

33. **Photoshop is used for**
    [A] Graphics   [B] Programming
    [C] Only typing   [D] Only animation

34. **Which of these color models is not in Photoshop?**
    [A] LAB   [B] CNYK
    [C] RGB   [D] HSB

35. **The process of drawing a pictorial representation for an algorithm is called**
    [A] Representation
    [B] Flowcharting
    [C] Evaluation
    [D] Graphitization

36. **A detailed flowchart or a flowchart with more details is called**
    [A] Mini flowchart
    [B] Micro flowchart
    [C] Detail Flowchart
    [D] Complete Flowchart

37. **When an algorithm is written in the form of a programming language, it becomes a**
    [A] Program
    [B] Pseudo code
    [C] Flowchart
    [D] Manual

✖ ✖ ✖

1. **Read the paragraph and answer the questions**
   Influence of nutrition on decreasing and/or increasing cancer risks has been studied extensively in the context of the USA. These studies have pointed towards certain foods and nutrients that may help prevent or, conversely, contribute to certain types of cancer. Nutritional factors have been found to account for about 30 percent of cancers in western countries. The contribution of diet to cancer risk in developing countries has been considered to be lower, around 20 percent, when poor diet is included the incidences are much higher. The American Cancer Society reveals that studies conducted in the US have shown that "overweight and obesity contribute to 14% to 20% of all cancer-related mortality." The study by Kushi and others (2006, p. 1) indicates that being overweight or obese "are clearly associated with increased risk for developing many cancers, including cancers of the breast in post-menopausal women, colon, endometrium, adenocarcinoma of the oesophagus, and kidney" (Kushi, et al., 2006, p. 1). Furthermore, there is evidence that is "highly suggestive that obesity also increase risk of cancers of the pancreas, gallbladder, thyroid, ovary, and cervix, and for multiple myeloma, Hodgkin lymphoma and aggressive prostate cancer" (Kushi et al., 2006, p.1)

From the paragraph can it be concluded that people with appropriate weight cannot have cancer.
   [A] Yes definitely
   [B] Maybe but not definitely
   [C] Cannot be concluded
   [D] None of the above

2. **What is the opposite of "Obesity"**
   [A] Bulkiness
   [B] Slenderness
   [C] Pursiness
   [D] Fleshiness

3. **What is NOT the core of teamwork?**
   [A] Common goal
   [B] Respect for other team members
   [C] Lack of trust
   [D] Allocation of work

4. **Which set of skills is considered person's skill?**
   [A] Influencing, articulating, discussing, summarising
   [B] Adapting, creating, designing, customizing, formulating
   [C] Computing, forecasting, planning, measuring
   [D] Managing, executing, consolidating, controlling

HINTS & EXPLANATION

SECTION-A
SCIENCE

1. (A) Rhizobium is a bacteria which fixes the nitrogen from atmosphere and makes it available to plant
2. (C) Silver is the best conductor of heat and electricity known, in fact it has the highest electrical and thermal conductivity known for any material. It is strong, malleable and ductile, and can endure extreme temperature ranges. Silver is also able to reflect light very well.
3. (D) When we push a wall, the wall does not move from its position. Hence, the force applied is equal to zero.
4. (A) A statement justify the law
5. (D) A nerve cell is long and branched with nerve endings.
6. (C) Dictyosome, cell wall and plastids are not found in an animal cell. Hence, only part C has the correct combination.
7. (B) Chromosomes are thread-like structures that carry genetic information.
8. (A) Blue green algae is a prokaryotic cell.
9. (C) It is difficult to move the box from rest than when it is already in motion because static friction is greater than the sliding friction.
10. (B) He has missed the switch in the diagram.
11. (A) Even if the switch B is turned on, the circuit will still be incomplete (as switch A is still OFF); therefore, neither bulb X nor bulb Y will glow.
12. (B) A screening tank contains such objects. These are called bar screens. These are responsible for stopping solid wastes like cans, plastic bottles before the water passes to the next chamber.
13. (D) The branches of the tall trees look like a roof over the other plants in the forest. This looks like a cover from top called canopy.
14. (A) Velocity of sound increases with increase in temperature. So sound wave travels faster on a hot summer day than on a cold winter day.

15. (D) By practicing efficient land management and continuous researches in the field of agriculture, increase in food production will result which would help to meet the demands of an increasing population.
16. (D) All metals are good conductors of heat; wood is an insulator
17. (B) Fungi are classified as unicellular or multicellular, eukaryotic organisms, along with other properties.
18. (B) Due to friction between the stick and rough surface a matchstick, heat is generated to ignite the material on the stick head
19. (A) Larger amplitude results in louder sound; smaller amplitude in softer sound
20. (A) It is the property of a fluid to exert pressure in all directions and on the walls of the container
21. (C) Presence of ions in the fluids allow formation of electric circuits
22. (C) Like charges repel each other at all ranges (distances)
23. (D) The human ear can detect sound vibrations between 20 Hz-20KHz
24. (B) Tropical cyclones cannot form over the equator where earth's vorticity is zero; it forms near the equator

SECTION-B
SOCIAL SCIENCE

1. (B) The vegetation in scanty (low) rainfall areas are called shrubs
2. (C) Because of Humid Climate and lot of rainfall near equator
3. (D) Tropical evergreen forest of Brazil is enormous and are referred to as lungs of World.
4. (B) Coniferous Forest also known as Taiga
5. (D) Coal tar is flammable in nature.It is used in heating.Binders used in graphite industry to

make green blocks have coal tar in them.

6. (B) It is national government agency used in promoting energy efficiency in various sectors of economy.

7. (D) The atmosphere is heated from the core of the Earth by radiation of the sun ,conduction from contact with warm land and water.

8. (B) If all the oxygen is converted to ozone ,ozone will damage all living things and man -made things. The temperature will rise and metals will melt . Water will start to evaporate and all living things will die.

9. (A) Lichens are the pioneer of succession which will produce acid to erode the barren rocks. Most lichens grow on stable rock surfaces of bark of old trees. This enables mosses to grew on the land after lichens which will then followed by gymnosperms.

10. (B) The combustion of fossil fuels increase the amount of suspended particles in air. These suspended particles could be unburnt carbon particle. Presence of high levels of these pollutants causing visibility to be lowered ,especially in cold weather when water also condenses out of air. This is known as smog and it is visible indication of air pollution

11. (D) All the problems are equally dangerous for environment increasing pollution level and death rate.

12. (A) Auto tyres and tubes require largest amount of rubber. This has increased now - a -days due to advancement in technology. So it has the highest consumption.

13. (B) Yellow Vein Mosaic is caused by association of DNA beta satellite with a begomovirus which is contained by okra(bhindi).

14. (B) It is form by the cross of Dasheri and Neelam. Its fruit is large in size, oblong elliptical in shape and cadmiu yellow in colour. Fruit and keeping quality are good. It is a mid season variety.

15. (C) Minerals have only limited, non-renewable deposits on earth

16. (B)

17. (C) With a large population, India is rich in human resource.

18. (C) Processing of nuclear fuel generates radio-active waste

19. (A) Monsoon rainfall is the primary source of water for agriculture

20. (B) Cotton is the primary input for textile industry in India

21. (C) Tidal energy from oceanic waves can be derived again and again

1. (D) Ram $54=5\times5\times5\times5=625$
Naresh$45=4\times4\times4\times4\times4= 1024$
Neha 36$=3\times3\times3\times3 \times3\times3= 729$
Vijay27$=2\times2\times2\times2\times2\times2\times2= 128$

2. (B) $45=4\times4\times4\times4=1024$
$74=7\times7\times7\times7= 4851$
$93=9\times9\times9= 729$
$56=5\times5\times5\times5\times5\times5= 15625$

3. (A) $25^6\div5^4$
$\Rightarrow(5^2)^6 \div5^4$
$\Rightarrow5^{(2\times6)}\div5^4$
$\Rightarrow5^{12}\div5^4$
$5^{(12-4)}$
$\Rightarrow5^8$
$(a^n)^m = (a^{n\times m})$

4. (C) $\dfrac{8^4\times9^3\times4}{4^3\times4^2\times18}$

$= [((2^3)^4) \times ((3^2)^3) \times 2^2)] \div [((2^2)^3) \times ((2^2)^2)\times (2\times(3)^2)]$
$= (2^{12} \times 3^6 \times 2^2) \div (2^6 \times 2^4 \times 2\times 3^2)$
$= (2^{14} \times 3^6) \div (2^{11} \times 3^2)$
$= 2^{(14-11)} \times 3^{(6-2)}$
$= 2^3 \times 3^4$
$= 8\times81$
$= 648$

5. (B) A Pyramid has a square base and four tringles on four sides.

6. (C) Volume of each gift box = $(12\times12\times12) = 1728$ cubic cm
Volume of the carton = $60\times24\times24 =34560$ cubic cm
Number of gift boxes that can be packed in the carton = $34560 \div1728 = 20$
Number of gift boxes that are left outside after Aman finishes arranging the boxes in the carton = $28 - 20 = 8$
Therefore, C is correct.

7. (C) When cubes are placed side by side their length increase thus $3+3+3 = 9$cm but their breaths and height remain the same.

8. (B) The expression $1/5 + (3/5 + 4/15)$ can also be written as $(1/5 +3/5) + 4/15$.
This simplifies to $4/5 + 4/15$

9. (D) Let the length of side QR be x cm.

10. (D)   11. (B)   12. (D)   13. (A)

14. (B) Multiplication is commutative for rational numbers. In general, for any two rational numbers a and b. Therefore, the equation which shows that rational numbers are commutative

under multiplication is.

Hence, B is correct.

15. (B)

16. (C) Given

Perimeter of the trapezium = 47 inches.

Let one of the parallel sides be x inches, then the other parallel side is

17. (B) The length of the given rectangle is the perimeter of the base of the given cylinder and width of the rectangle is the height of the cylinder.

18. (B) For any non-zero, $a_0 = 1$

19. (B) Area of trapezium = ½ × distance between parallel sides × sum of parallel sides

= ½ × 15 × (24+20)= 330 cm^2

20. (D) The range in the data is the difference between the highest and the lowest values

21. (C) Volume of cuboid = base area × height

$900 = 180 \times$ height   Therefore, height = 900/180 = 5 cm

22. (A) The number of times a particular observation occurs in a data is called the frequency of the observation. Frequency of v is 4

23. (B) Statistical methods allows one to derive various properties of data

24. (A) Processing of Large volumes of data requires computer storage and computing facility

SECTION-D
DIGITAL LITERACY

1. (C) a target="_blank" Open in New Browser Tab (or Window) The target attribute specifies where the linked document will open when the link is clicked. The default is the current window. If target="_blank", the linked document will open in a new tab or (on older browsers) a new window

2. (D) If we need to toggle the visibility of multiple selected layers at once, then we use it to show / hide a layer

3. (D) EPS format supports Lab, CMYK, RGB, Indexed Color, Duotone, Grayscale, and Bitmap color modes, and does not support alpha channels. EPS does support clipping paths. Desktop Color Separations (DCS) format, a version of the standard EPS format, lets you save color separations of CMYK images...

4. (A) A dock is a collection of panels or panel groups displayed together, generally in a vertical orientation. You dock and undock panels by moving them into and out of a dock. To dock a panel, drag it by its tab into the dock, at the top,

bottom, or in between other panels.Navigator panel being dragged out to new dock, indicated by blue vertical highlight

5. (B) The HTML contains six types of headings which are defined with the <h1> to <h6> tags. Each type of heading tag displays different text size from another. So, <h1> is the largest heading tag and <h6> is the smallest one. For example:

<h1>Heading no. 1</h1>
<h2>Heading no. 2</h2>
<h3>Heading no. 3</h3>
<h4>Heading no. 4</h4>
<h5>Heading no. 5</h5>
<h6>Heading no. 6</h6>

6. (A) The HTML iframe tag is used to display a nested webpage. In other words, it represents a webpage within a webpage. The HTML <iframe> tag defines an inline frame.

7. (C) HTML elements with no content are called empty elements. For example: <br>, <hr> etc.

8. (B) <A href = "kamp. html"><IMG src = "kamp. gif"></A> is the correct code

9. (B) A diamond shape box denotes either a truth value or a false value. It +D29jumps onto two different statements following it through flow lines.

10. (A) / is used to end the tag of HTML

11. (A) The title attribute specifies extra information about an element. The information is most often shown as a tooltip text when the mouse moves over the element.

12. (D) <HTML>
<HEAD>
<TITLE>
creating a table
</TITLE>
<BODY>
<TABLE BORDER = "5" WIDTH = "100%">
<TR>
<TH> class </TH>
<TH> time </TH>
</TR>
<TR>
<TD> computer science </TD>
<TD> 10:00 </TD>
</TR>
</TABLE>
</BODY>

13. (C) If the image is smaller than the screen, then it is repeated.

14. (C) HTML <a> tag provides you option to specify an email address to send an email. While using <a> tag as an email tag, you will use mailto: email address along with href attribute. Following is

the syntax of using mailto instead of using http.

Send Email

15. (A) H1 is used in HTML for the biggest heading and then with the following numbers, the height goes on decreasing

16. (B) Cell padding in HTML refers to the space between a specific cell wall and the cell data and it can be increased and decreased respectively.

17. (C) Vertical frames in the browser window are defined by the cols attribute. All the other option stated above are not related to the question stated above.

18. (C) An active link (in whichever webpage may it be), it is always red and underlined.

19. (C) An unvisited link (in whichever webpage may it be),it is always blue and underlined.

20. (B) There is no comparison or conditioning involved in above problem.Thus, we will not use diamond symbol which is used for decision in flow chart.

21. (D) The above sown table is example of merging two columns to merge columns we have to use colspan attribute of table tag.

22. (A) List inside list is known as nested list.

23. (C) Rectangle symbol is used to show process of a flowchart.

24. (B) The Magic Wand tool selects areas of similar colors.

25. (C) The face attribute of font tag is used to define font style and color attribute is used to define font color.

26. (A) The Paint Bucket tool fills in areas of similar color with the Foreground color. The Gradient Tool creates a smooth straight-line change from the foreground color to the background color.

27. (C) The above list is types of shape tool.

28. (A) Headings are defined with the <h1> to <h6> tags. <h1> defines the most important heading. <h6> defines the least important heading.

29. (B) <imgsrc="filepath.jpg"> using src we can define path of a file in HTML.

30. (A) .mov,.mp4,.mp3 are audio/video formats so supported image formats are .jpg,.png,.bmp

31. (C) In computer science, flowchart refers to a pictorial representation of an algorithm

32. (D)

33. (A)

34. (B)

35. (C) The process of drawing a flowchart for an algorithm is called Flowcharting

36. (D) A detailed flowchart or a flowchart with more details is called as micro flowchart. It represents all the components of the algorithm that is followed.

37. (A) An algorithm becomes a program when it is written in the form of a programming language

SECTION-E
LOGICAL REASONING

1. (C) Obesity may have a close link with cancer, but that in no way indicate that non-obese people cannot have cancer.

2. (B) Slenderness is lack of unnecessary fat in the body.

3. (C) Lack of trust is a hindrance to teamwork.

4. (A) "b" is cognitive skills, "c" is financial skills, "d" is administrative skills

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MAPPING PLATFORM
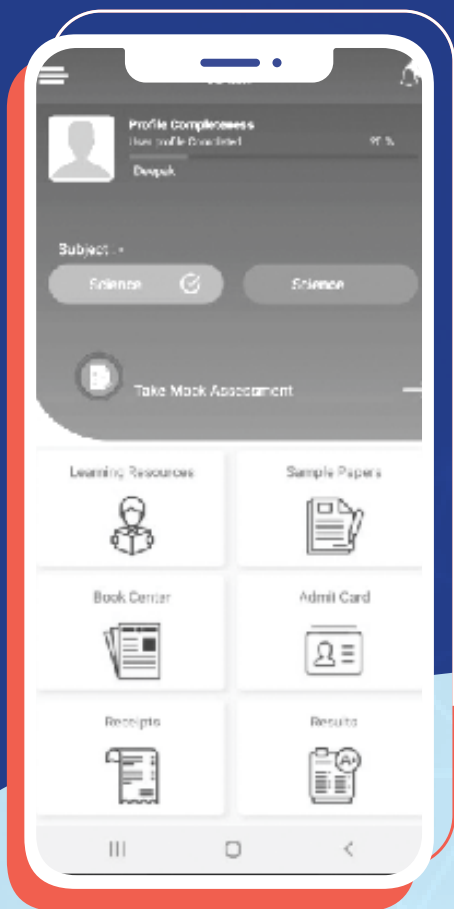
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ABOUT CSIR-NISTADS

CSIR-NISTADS is one of the constituent laboratories of the Council of Scientific and Industrial Research (CSIR), Ministry of Science & Technology, Govt. of India, New Delhi. The Institute is devoted to research on policy, policy advisory and provide research support to national S&T agencies on science, technology, society and innovation challenges.

CSIR-NISTADS is a pioneering research organization in realm of S&T policy research in the areas of Innovation systems, S&T Human resources, rural development, MSME, Global governance, Climate change, Energy and Environment and other domains related to STI (Science, Technology and Innovation) policy.

One of the pressing issues of India is that young students are not attracted to opt science as a career, and therefore, there is a strong need to address this issue. In pursuit of the solution in policy advocacy, CSIR-NISTADS has initiated Knowledge and Awareness Mapping Platform (KAMP) in association with M/S Nysa Communications Pvt. Ltd., a CMMI level 5 organization.

LEARN MORE

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