

# NATIONAL ASSESSMENT FOR SCIENTIFIC TEMPERAMENT AND APTITUDE (NASTA 2019)

**WORKBOOK**

## SUBJECTS COVERED

- Science, Social Science, Mathematics & Computers
- MCQs with Hints & Explanations
- Sample OMR Sheet



# **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.

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# 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 

<b>SCHOOL</b>			
<b>KULDEEP INTERNATIONAL</b>			
<b>PARTICIPANT'S NAME</b>			
<b>AMIT</b>			
<b>CLASS</b>	<b>SCHOOL CODE</b>	<b>Roll No.</b>	<b>ENROLLMENT NO.</b>
<b>5</b>	<b>10672 - Paper-1</b>	<b>19100001</b>	<b>1910015947</b>



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	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	16	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	31	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	46	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	17	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	32	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	47	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	18	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	33	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	48	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	34	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	49	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	20	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	35	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	50	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	21	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	36	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	51	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	22	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	37	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	52	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	24	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	39	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	54	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	25	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	40	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	55	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	26	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	41	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	56	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	27	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	42	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	57	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	28	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	43	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	58	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	29	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	44	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	59	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	30	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	45	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	60	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**FILL UP THE CONTACT DETAILS BELOW**

MOTHER'S / FATHER'S NAME

EMAIL ID

MOBILE NO. +

<p style="text-align: center; font-size: small;">SIGN OF THE PARTICIPANT TO BE SIGNED BY STUDENT ONLY</p>	<p style="font-size: x-small;">DATE OF EXAMINATION</p> <p style="font-size: x-small;">D D - M M - Y Y Y Y</p> <p style="font-size: x-small;"> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>             -              <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/>             -              <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> <input style="width: 20px; height: 20px;" type="text"/> </p>	<p style="text-align: center; font-size: small;">SIGNATURE OF THE INVIGILATOR</p>
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## SECTION

# A

# SCIENCE

- Neena went to see a fort and saw a part of the wall coming out in a round shape. She asked her guide as to what is it called and why are they made in the fort wall?**
  - Digs;to ensure security
  - Holes;for aesthetics
  - Bastions;to ensure security
  - Holes;for people to come inside
- Why do you think it is important to have a museum?**
  - Because museums help us to know how people of those old times lived, what they used and what things they made.
  - Because museums are a source of income
  - Because museums develop our understanding of mathematics
  - None of these
- When do we say it is a full moon?**
  - When the entire side of the moon facing the earth gets sunlight
  - When we see three- quarters of the moon
  - When a small portion of the moon's side facing the earth receives sunlight
  - None of these
- Rohan's brother is going on a trek and is preparing his bag. Which of the following tools primarily he should take?**
  - Sling with rope
  - magnifying glass
  - haystack
  - a packet of chips
- If you go to a petrol pump with your father, which of the following vehicle would you most likely not see standing there for petrol or diesel?**
  - Truck
  - Bicycle
  - Car
  - Motorcycle
- If Sunita spills water from a glass tumbler both on earth and in space, which of the following would happen to the water in space?**
  - The water will fall down.
  - The water floats around as blobs.
  - The water immediately gets vaporized
  - The water immediately freezes
- Riya and Jiya are two friends. Both of them have different families. In which of the following respects can their families be different?**
  - Both families follow different religion
  - They follow different cultures
  - They have different food habits and speak different language
  - All of the above
- The minimum age of marriage for girls is**
  - 16
  - 18
  - 19
  - 21
- Riya has a baby. What types of sound does he make?**
  - Crying
  - Laughing
  - Both A and B
  - None of these
- Ram has brown eyes. From which member of his family, he probably had got brown eyes?**
  - Sister
  - Brother
  - Cousin
  - Grandmother
- Viraj went to buy ingredients to prepare kadha prasad. Which of the following ingredient he will not buy?**
  - Flour
  - Ghee
  - Sugar
  - Rice
- Name the place where children study and stay far from their home**
  - School
  - Boarding School
  - Playschool
  - Garden



13. An animal which lives both on land and water is called?

- [A] Amphibian
- [B] Mammal
- [C] Reptile
- [D] Aves

14. Radha went to a market and picked a vegetable the surface of which was very smooth to touch. Which vegetable did she pick?

- [A]  [B] 
- [C]  [D] 

15. Which of these vegetable spoil faster?

- [A]  [B] 
- [C]  [D] 

16. Why do vegetable seller sprinkle water on vegetables?

- [A] To keep them fresh
- [B] To make them wet
- [C] To spoil them
- [D] None of these

17. Ram took out the cooked vegetable from the refrigerator. But, he found that the vegetable was spoiled. By which of the following reasons, Ram concluded that the vegetable is spoiled?

- [A] By its colour
- [B] By its taste
- [C] By its smell
- [D] All of these

18. A family went to a builder and requested him to build their house. Which of these factors are important to decide the type of house to be build?

- [A] Climatic conditions
- [B] Number of members in the family
- [C] Availability of materials
- [D] All of these

19. Where do people stay when they lose their shelters in some calamity?

- [A] Schools [B] Airport
- [C] Labs [D] Relief Camp

20. Here are 3 statements. Considering them to be true, tell what are they exactly about?

- a. The cells are used to store the food.

- b. Honey is also collected in these cells.
- c. It can be natural as well as man-made.
- [A] House [B] Hotel
- [C] Beehive [D] Nest

21. Aditya was watching a movie in his room. Suddenly he heard someone shouting “help please help” from his neighbours house. If you were in Aditya’s place what you will do?

- [A] Go to the neighbours house and try to find out what actually the matter is and help accordingly.
- [B] Straight away call the police.
- [C] Ignore the noise and continue watching movie.
- [D] Start shouting ‘Please help them’

22. A Street dog marks its area and does not let other dogs enter in it. How does the dog mark it?

- [A] He make a chalk line
- [B] He urinates along the periphery of its area
- [C] He barks and tells others not to enter
- [D] He guards it all the time

23. Tigers are one of the most alert animals in jungle, still it is in danger. Why? Choose the correct answer?

- [A] They kill each other
- [B] They are hunted by poachers
- [C] They run very fast
- [D] None of these

24. Rahul was blind but still he could recognise different cooked food. Choose the correct answer.

- [A] He could feel the food
- [B] He can guess the food
- [C] By its taste and smell
- [D] None of these

25. Preeti got very sick. She was vomiting and having loose motion. Doctor recommended her to drink on of the following regularly. What was it?

- [A] Vegetable Juice
- [B] Sugar & Salt Solution
- [C] Soft Drink
- [D] None of these

26. Deepak’s mother tied soaked chana in a wet cloth and hung it for a day. Next day what will happen to chana?

- [A] They will spoil
- [B] They would be smelly
- [C] They will become hard
- [D] They will sprout




27. **Seeds do not have legs yet they travel great distance. How?**  
 [A] By wind  
 [B] By sticking to animals  
 [C] By water currents  
 [D] All of these
28. **Long time ago chilli, potato and tomato were imported from?**  
 [A] North America [B] South America  
 [C] Australia [D] Europe
29. **Ghadsisar was a series of lakes in Rajasthan to collect rain water. How many lakes were interconnected to form Ghadsisar?**  
 [A] 8 [B] 9  
 [C] 7 [D] 5
30. **In olden days, India had best ways to harvest rain water and combat scarcity of water. They had built \_\_\_\_\_**  
 [A] Lakes [B] Wells & Stepwells  
 [C] Johads [D] All of these
31. **How could we save petrol for future?**  
 [A] By having less number of vehicles  
 [B] By having solar energy driven vehicles  
 [C] By using bicycles as much as we can  
 [D] All of these
32. **In winter, Gujarat people enjoy undhiya. The dish is made up of?**  
 [A] Milet  
 [B] Gourd  
 [C] All vegetables and fresh species  
 [D] Fruits
33. **Earthworms are also called soil's best friend. Why?**  
 [A] They live in soil by digging it and make it airy  
 [B] They eat decaying organic matter  
 [C] Their droppings fertilize the soil  
 [D] All of these
34. **If Eena and Mina are both your uncle's daughter then both are your PO**  
 [A] Younger sisters [B] Cousins  
 [C] nieces [D] Elder sisters
35. **The most common feature among houses in areas with heavy rain and snowfall is expected to be CT**  
 [A] Color of the walls [B] Sloping roof  
 [C] Large windows [D] Small doors
36. **Communities who normally travel from one place to another without fixed homes are called**  
 [A] Theatres [B] Soldiers  
 [C] Nomads [D] Sailors
37. **The type of energy stored when we stretch a string is CT**  
 [A] kinetic [B] Elastic potential  
 [C] thermal [D] electric
38. **Compared to normal air in the atmosphere, water vapor is**  
 [A] lighter  
 [B] Equal weight  
 [C] Heavier  
 [D] Can be lighter or heavier
39. **The most abundant element in the earth's atmosphere is**  
 [A] CO<sub>2</sub> [B] Water vapor  
 [C] Oxygen [D] Nitrogen
40. **The planets revolve around the sun in**  
 [A] Circular orbits  
 [B] Non-circular but regular orbits  
 [C] Non-circular irregular orbits  
 [D] No definite orbits
41. **The rings of planet Saturn are mostly composed of**  
 [A] Sand Particles  
 [B] Mostly water ice particles  
 [C] Mostly Big rocks  
 [D] Mostly asteroids
42. **The 0 Degree of latitude is situated in**  
 [A] Northern Hemisphere  
 [B] In between the North and South Hemispheres  
 [C] Southern Hemisphere  
 [D] In between the East and West Hemispheres
43. **The primary cause of the seasons on earth is**  
 [A] Tilt of the earth's rotational axis around the sun  
 [B] The distance of earth from the sun  
 [C] The revolution of earth around its axis  
 [D] The lunar phases



## SECTION

## B

## MATHEMATICS

1. Two boxes of cereal costs Rs.27.40 and buying one box of cereal only costs Rs. 14.00 . How much do you save by buying two boxes at the same time rather than one at a time?  
[A] 30 paise [B] 60 paise  
[C] Rs. 1 [D] Rs. 2
2. Ria has a total of 9 notes in the denominations of 10, 20 and 50 . If she has a total amount of Rs 350, then how many Rs 20 notes does she have?  
[A] 3 [B] 10  
[C] 7 [D] 2
3. It costs Rs 564 to take a bus tour of Kolkata. This is 3 times as much as it costs to take a bus tour of Bengaluru city. The cost to take a bus tour of Bengaluru city is  
[A] Rs 1128 [B] Rs188  
[C] Rs 1692 [D] Rs 564
4. Kareem bought 7 identical sharpeners. He paid Rs 100 and received Rs 44 as change. Find the cost of each sharpener?
- 
- [A] Rs 7.8 [B] Rs 8.0  
[C] Rs 56 [D] Rs 44
5. The entrance cost of 1 ticket child : Rs 20 and Adults : Rs 40. The cost for a couple to visit the trade fair with their 2 children is  
[A] Rs. 40 [B] Rs. 80  
[C] Rs. 100 [D] Rs. 120
6. Rumana is at the mall with her friends . She buy a DVD for Rs 120, Then she buys a new pair of earrings for Rs 80. Lastly ,she gets her mother a bouquet of flowers for Rs 100 . If she is left with Rs 700, how much money did she have before she went shopping?  
[A] Rs. 1000 [B] Rs. 1200  
[C] Rs. 1400 [D] Rs. 1600
7. Alisha is reading a story book. Out of total of 270 pages , she manages to read  $\frac{1}{30}$  of the book everyday. After 3 days , how many pages are left for her to read?  
[A] 243 [B] 245  
[C] 244 [D] 261
8. If fractions  $\frac{13}{3}$ ,  $\frac{13}{23}$ ,  $\frac{13}{12}$  and  $\frac{13}{5}$  and are arranged in descending order. Which fraction is in the fourth place counting from the left?  
[A]  $\frac{13}{23}$  [B]  $\frac{13}{12}$   
[C]  $\frac{13}{3}$  [D]  $\frac{13}{5}$
9. Out of a class of 150, one third opted for German, two-fifth opted for Italian and rest for french. Find how many opted for French?  
[A] 40 [B] 50  
[C] 60 [D] 70
10. There are 482 students in the school and there are two sections in grade 4: Mr Akshay's and Mr. Ankit's Classes . Mr Akshay's class have 15 boys and 6 girls. Mr. Ankit's class have 14 girls and 10 boys. What fraction of grade 4 students are boys?  
[A]  $\frac{4}{9}$  [B]  $\frac{5}{9}$   
[C]  $\frac{6}{9}$  [D]  $\frac{7}{9}$
11. If we add 9 to a number and then multiply by 12, the product is 324. What was the original number ?  
[A] 16 [B] 17  
[C] 18 [D] 19



12. Irfan bought a refrigerator and 15 TV sets for Rs 9,80,630. If the refrigerator costs Rs 35000, find the cost of each TV set.

- [A] Rs. 40,630
- [B] Rs. 63,042
- [C] Rs. 64,032
- [D] Rs. 30,462

13. Venu bought 32 boxes of cherries. There are 140 cherries in each box. He packed them into bags of 35 cherries each. How many bags does he need?

- [A] 128
- [B] 132
- [C] 148
- [D] 156

14. If we subtract 54 from a number and then divide by 12, the quotient is 173. What was the original number?

- [A] 3120
- [B] 2130
- [C] 1230
- [D] 1320

15. 17226 children from 27 different schools participated in a sport event. If an equal number of students participated from each school, how many students participated from each school and if each student was given Rs 500 at the event, how much money was given away?

- [A] 638 and Rs 3,19,000
- [B] 345 and Rs 67,58,900
- [C] 319 and Rs 67,59,000
- [D] 638 and Rs 86,13,000

16. Consider the flag shown.



How much of it is white?

- [A] One-third
- [B] One-fourth
- [C] One-fifth
- [D] One-sixth

17. If the cost of a pencil is Rs 3.5, then the cost of 100 pencils will be

- [A] Rs 35
- [B] Rs 3500
- [C] Rs 350
- [D] S 35.50

18. The nearest approximation to 55.97 is CT

- [A] 56.0
- [B] 55.9
- [C] 55.0
- [D] 55.

19. Value that appears most often in a set of observations is called its

- [A] Maximum
- [B] Mean
- [C] Mode
- [D] Median

20. The difference between the highest and the lowest values of an observation is called IP

- [A] width
- [B] Range
- [C] periodicity
- [D] Absolute value

21. The fractional form for 16% can be written as

- [A]  $\frac{16}{25}$
- [B]  $\frac{25}{4}$
- [C]  $\frac{25}{16}$
- [D]  $\frac{4}{25}$



## SECTION

# C

# DIGITAL LITERACY/IT

1. Tanu uses Word 2016 to write about his trip to Sydney. What formatting has he applied to the text?

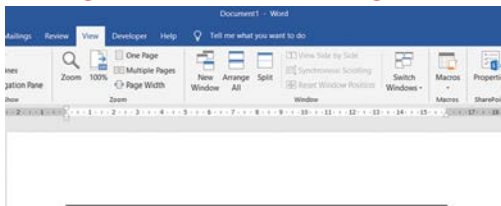
[A] He had centered the text  
 [B] He had justified the alignment of the text  
 [C] He had wrapped the text  
 [D] He had formatted the text with line spacing 5.0 and applied Bold for the heading

2. The below figure showcases which of the following views in Microsoft Word 2010



[A] Reading Mode View  
 [B] Document Outline View  
 [C] Backstage View  
 [D] Navigation View

3. In Word 2016, Peter types a symbol three times on a new line and then presses the Enter Key, Word 2016 automatically expands these symbols to a line. Which of the following symbols was used to get the line as shown in the figure?







[A] = [B] #  
 [C] \$ [D] \_

4. Booting refers to the process of starting a computer. How can the term “cold booting” be defined?

[A] Start the computer first time by mainswitch  
 [B] Restart the computer by Ctrl + Alt + Delkeys

[C] Switch on the button on the monitor  
 [D] Switch on the power switch on CPU

5. Which of the following is a system software?

[A]  [B]   
 [C]  [D] 

6. When an advertisement says a computer monitor is “15.1 inches wide” (“38 cm wide”), what are they measuring?

[A] The width of the screen across the middle.  
 [B] The width of the screen from the bottom left corner to the top right corner.  
 [C] The width of the monitor (screen plus frame) across the middle.  
 [D] The width of the monitor (screen plus frame) from the bottom left corner to the top right corner.

7. Your customer tells you the print quality of their dot matrix printer is light then dark. Which of the following could cause the problem.

[A] Paper slippage  
 [B] Improper ribbon advancement  
 [C] Paper thickness  
 [D] Head position

8. Which is the longest key in the keyboard?

[A] Shift [B] Tab  
 [C] Enter [D] Space Bar Key

9. \_\_\_\_\_ view of the “File Explorer” displays a medium sized icon along the information on types and sizes.

[A] Medium [B] Details  
 [C] List [D] Tiles

10. Which of the following is not a feature of Windows?

[A] GUI [B] WYSIWYG  
 [C] PnP [D] None of these

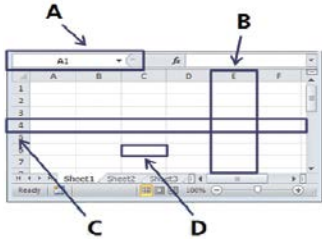
11. Which of the following should be your ideal choice to remove an application from Windows



that you no longer need?

- [A] Delete the program files
- [B] Use the uninstall program that came with the application
- [C] Use the Add or Remove Programs Applet
- [D] Use the Registry Editor to remove references to the applications

12. Which letter on the image points to the NameBox?



- [A] A
- [B] B
- [C] C
- [D] D

13. Which of the following is true about Excel?

- [A] Columns are labelled from right to left with letters in a spreadsheet
- [B] Only two types of data can be entered
- [C] A worksheet consists of 16,384 columns
- [D] A worksheet has 10,84,576 rows

14. Numbers in Excel are automatically aligned

- [A] Justify
- [B] Left
- [C] Right
- [D] Center

15. Which key would you press to select random cells as shown in the figure?

- [A] Shift + mouse clicks on random cells
- [B] Ctrl + mouse clicks on random cells
- [C] Alt + mouse clicks on random cells
- [D] No Keys, only mouse clicks on random cells

16. An image representing a folder or a program is called

- [A] Button
- [B] Desktop
- [C] WordArt
- [D] Icon

17. The bar present at the bottom of the windows and contains the start button is called



- [A] Start bar
- [B] Tool bar
- [C] Task bar
- [D] Quick Launch bar

18. You can select multiple options randomly just by holding which of the following keys?



19. Video - - - provides-a-powerful-way-to-you-point.-. When-you-click-online-video;you-can-paste-in-te-embed-code-for-the-video-you-want-to-add.-you-can-also-type-a-keyword-to-search-online-for-the-video-that-best-fits-our-document.¶

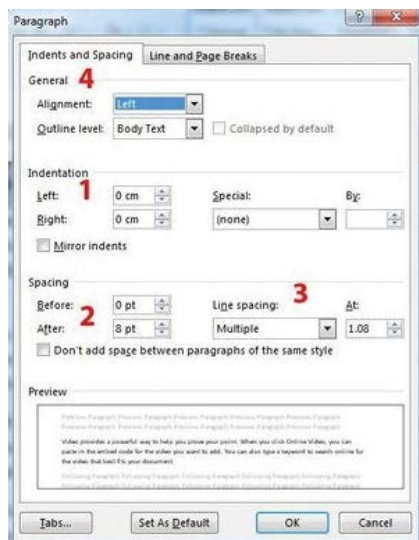
The extra characters shown in this text such as the 'arrows', dots between words and ¶ are known as

- [A] Non-printing formatting marks
- [B] Symbols
- [C] Spacers
- [D] Over-type characters

20. I show all the data stored on your Computer, Floppy disk, CD, etc. Who am I?

- [A] My computer
- [B] C drive
- [C] Control Panel
- [D] None of these

21. Raja was typing his essay in MS WORD. He wants to set the spacing between paragraphs. Where should he click in the Paragraph dialog box to set the spacing?



- [A] 1
- [B] 2
- [C] 3
- [D] 4

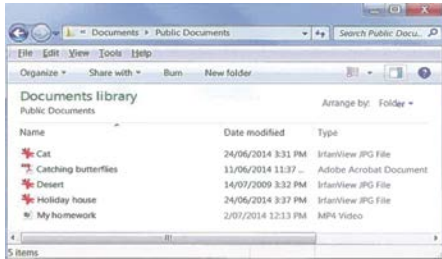
22. The storage that loses its memory every time the computer is turned off is called

- [A] CPU
- [B] Hard Drive
- [C] RAM
- [D] ROM

23. Which option shows only hardware devices primarily used to enter data into a computer?



24. Spurthi saved certain files in a folder on her computer. What is the name of this folder.



- [A] My homework
- [B] Documents Library
- [C] Public Documents
- [D] IrfanView JPG File

25. Pam is downloading a program upgrade and has been instructed to close and reload the operating system. What should Pam do to achieve this?

- [A] Shut Down
- [B] Force Quit
- [C] Log out
- [D] Restart

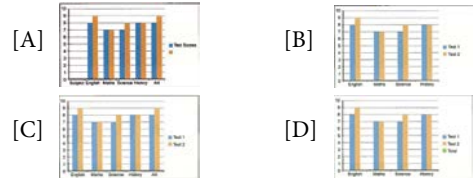
26. Poornima is using a MS Excel worksheet to monitor the number of hours she spends on some activities during the week. She tried to select cell B1, but every time he clicked on it, cell A1 was selected as well. What was the most likely reason for this?

	A	B	C
1	Weekly Planner		
2	Activity	Hours per Week	
3			
4	School		30
5	Homework		20
6	Sleeping		56
7	Eating		14
8	Sport		21
9	Time with Friends		11
10			152
11			

- [A] Cell A1 text has been centered
- [B] Cells A1 and B1 have been merged
- [C] Cell B1 is locked and non editable
- [D] Cells A1 and B1 have been set to wrap the text.

27. Tom inserted a chart for the cell range A2:C6. Which of the following is Tom's Chart?

	A	B	C	D	E
1	Test Scores				
2	Subject	Test 1	Test 2	Total	
3	English	8		#NAME?	
4	Maths	7	7		
5	Science	7	8		
6	History	8	8		
7	Art	8	9		



28. \_\_\_\_\_ invented the World Wide Web

- [A] Tim Berners-Lee
- [B] Bill Gates
- [C] Larry Page
- [D] Sergey Brin

29.



Prathi is viewing a website. What will happen when Prathi clicks the text where the mouse cursor is?

- [A] A document will open
- [B] Prathi will hear the words being pronounced
- [C] A video will start to play
- [D] A new webpage with extension .html will open

30. The part of a computer that allows the user to view information generated by it on a screen is

- [A] UPS
- [B] Mouse
- [C] Monitor
- [D] RAM

31. In internet terminology IP stands for

- [A] Integrated Process
- [B] Internet Protocol
- [C] Internal Processing
- [D] Inclusive Processing

32. The short cut key to undo the last editing action on a document is

- [A] CTRL+Z
- [B] CTRL + X
- [C] CTRL + U
- [D] CTRL + ZZ

33. The command/button used to reload a Web page is

- [A] Reload
- [B] Redo
- [C] Refresh
- [D] Restore

34. The part of the computer that directs the computer on how to use its components is PO/CT

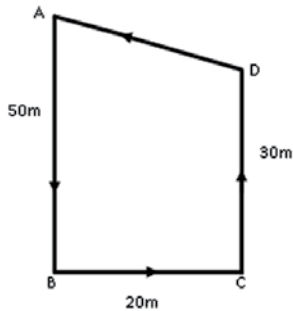
- [A] Utility
- [B] Windows
- [C] Network Switch
- [D] Operating System

## SECTION

# D

# LOGICAL REASONING

1. Rina starts from A and returns to the point through the path indicated by arrow in the figure. In which direction did she move while traveling from point D to A?

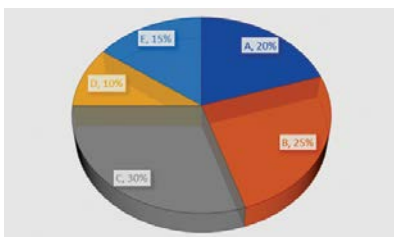


- [A] East                                      [B] South-east  
[C] North                                      [D] North-west

2.  $A*B$  means A and B are of the same age  
 $A-B$  means B is younger than A  
 $A+B$  means A is younger than B  
Then what does  $Sachin*Madan-Reema$  means?

- [A] Reema is the youngest  
[B] Reema is the oldest  
[C] Madan is younger than Reema  
[D] None of these

3. Read the following diagram and answer the questions. It shows percentage of cost in total expenditure of publishing book. A is share of paper cost, B is share of printing cost, C is share of binding cost, D is other costs, E is royalty.



If total cost of publishing a book is 1500, what is the ratio of paper cost and binding cost?

- [A] 3:4                                      [B] 3:5  
[C] 2:3                                      [D] 2:5

4. What is the image NOT conveying from the body language of the persons?



- [A] Embarrassment  
[B] Happiness  
[C] Disappointment  
[D] Questioning

5. Which social skills this image indicate?



- [A] Disrespecting                              [B] Ignoring  
[C] Appreciating                              [D] Resisting





## HINTS & EXPLANATION

### SECTION-A SCIENCE

1. (C) At some places, a part of the wall comes out in a round shape. These are called bastions (burj). These are even higher than the wall. Thick walls, a huge gate and so many bastions are some ways to ensure security
2. (A) Because museums help us to know how people of those old times lived, what they used and what things they made. They help develop our understanding of history.
3. (A) When the entire side of the moon facing the earth gets sunlight, we see the perfectly round moon. It is called the full moon.
4. (A) A sling with rope is the most essential tool for someone who is going on a trek as it helps them to climb up.
5. (B) A bicycle runs without petrol and diesel. Hence, you will never find it in the line of petrol pump.
6. (B) Everything floats in space. Hence, water too will float around as blobs when spilled over.
7. (D) Families can be different in the following ways: Families may follow different religion such as Hinduism, Islam, and Christianity etc. Families follow different cultures. Families have different food habits and speak different language.
8. (B) The minimum age of marriage for girls is 18 years.
9. (C) A child makes sound of crying and laughing
10. (D) We inherit characteristics from our parents or grandparents
11. (D) Kadha prasad does not contain rice
12. (B) In boarding school children stay and study
13. (A) Frogs are amphibians. They live on both land and water.
14. (A) Spinach is smooth to touch
15. (D) Tomato spoils faster than other vegetables
16. (A) Water is sprinkled on vegetables so that they do not shrink
17. (D) A spoiled food has different colour, smell and taste.
18. (D) All the factors contribute in deciding the type of house to be built.
19. (D) Relief camps are organized by the government or private help groups to help the people affected in any calamity.
20. (C) A beehive is used by the bees to store their collected honey and food. It can be man-made as well as natural.
21. (A) In such a situation go to the neighbour's house and try to find out what is the matter actually so as to help accordingly.
22. (B) Dogs mark out their own area on road by urinating on periphery
23. (B) Hunters & poachers kill tiger for their skin
24. (C) Food can be tasted by tongue and can be identified by seeing and smelling
25. (B) Salt & sugar solution maintain the water quantity in body
26. (D) Soaked chana germinates when given proper moisture and heat
27. (D) Seeds are dispersed by wind, animals, birds and water currents.
28. (B) Long time ago these were imported from South America
29. (B) About 650 years ago king Ghadsi got it made in Jaisalmer.
30. (D) In olden days people were aware of importance of water. They had built all the options where rain water was collected.
31. (D) By doing all of these, consumption of petrol can be reduced.
32. (C)
33. (D) Earthworm are soil's friendly as they tunnel in soil making it soft and airy. Their droppings make soil fertile
34. (B)
35. (B) Slopping roof allows rain and snow to slide off easily
36. (C)



37. (B) The act of stretching stores mechanical energy in the string
38. (A) It's basic observation. But also deducible from molecular weight
39. (D)
40. (B)
41. (B)
42. (B)
43. (B) The tilt in the axis results in differential heating of the earth in different seasons

## SECTION-B MATHEMATICS

1. (A) Cost of 2 boxes = 27.40 Rs. But if we buy one box it will cost =  $27.40/2 = \text{Rs } 13.70$   
But we have to pay Rs 14.00. So we save 30 paise if we buy 2 boxes of cereal.
2. (D) To get Rs 350 we have 6 notes of Rs 50, 2 notes of Rs 20 and 1 note of Rs 10.
3. (B) Cost of Bengaluru city is  $1/3$  times which means  $1/3$  times the city of Kolkata city =  $1/3 \times \text{City of Kolkata} = 1/3 \times 564 = \text{Rs } 188$
4. (B) Total money paid by Kareem =  $100 - 44 = \text{Rs } 56$   
Cost of each sharpener =  $56/7 = \text{Rs } 8.0$
5. (D) Couple means 2 adults. So the fair will be  $2 \times 40 + 2 \times 20 = 120 \text{ Rs}$
6. (A) Total cost of all materials = Cost of Bouquet of flowers + Cost of earrings + Cost of DVD =  $120 + 80 + 100 = \text{Rs } 300$   
Total money with Rumana =  $700 + 300 = \text{Rs } 1000$
7. (A) On 3 days, she read  $3/30$  that means she read 27 pages on 3 days i.e.  $3/30 \times 270 = 27$   
So pages left to read are  $270 - 27 = 243$
8. (A)  $13.3 = 4.3$ ,  $13/23 = 0.56$ ,  $13/12 = 1.08$ ,  $13/5 = 2.6$   
Hence,  $13/3 < 13/5 < 13 < 12 < 13/23$
9. (A) Number of persons opted for German =  $1/3 \times 150 = 50$   
Number of persons opted for Italian =  $2/5 \times 150 = 60$   
Number of persons opted for french =  $150 - (50 + 60) = 40$
10. (B) Total number of boys =  $15 + 10 = 25$   
Total number of students =  $15 + 6 + 14 + 10 = 45$   
Fraction of students who are boys =  $25 / 45 = 5/9$
11. (C)  $324/12 = 27 - 9 = 18$
12. (B) Cost of 15 TV sets = Total cost - Cost of refrigerator =  $980630 - 35000 = \text{Rs } 945630$   
Cost of 1 TV set = Cost of 15 TC sets / Number of TV sets =  $945630/15 = \text{Rs } 63042$
13. (A) Total number of cherries = Number of boxes  $\times$  Number of cherries in each box  
 $= 32 \times 140 = 4480$   
Number of bags = Total number of cherries / Number of cherries in each box =  $4480/35 = 128$
14. (B)  $x - 54/12 = 173$   
 $173 \times 12 = 2076$   
 $2076 + 54 = 2130$   
 $x = 2130$
15. (D) Number of students participated in the event from each school = Total number of students / Number of schools =  $17226/27 = 638$   
Money given by students = Money given by each student =  $17226 \times 500 = \text{Rs. } 8613000$
16. (A) The flag is divided into three parts of which one of the parts is white. Therefore, one-third of the flag is white.
17. (C) Simple arithmetic
18. (A) 55.97 is approximated to 56 because 0.97 gives 1 in approximation
19. (C)
20. (B) Range depends on the maximum and the minimum of the data
21. (D) Simple arithmetic:  $4/25 = 4/25 \times 100 = 16\%$

## SECTION-C DIGITAL LITERACY/IT

1. (B) The insertion point is near the Text "My Trip to Sydney". The corresponding formatting that was chosen will show up. Here B icon is active and selected and Justify alignment is active and selected.  
Hence A and C options are wrong. D is also wrong because though the bold icon is selected. The line spacing for the text will be in default 1 as shown and if it is 5, there would be more vertical space between the heading and the text. Hence the line spacing is not 5. D is partially correct and partially wrong. Hence it is rejected. So it is option B which says it is justified as the Justify icon in the Paragraph group is selected.
2. (C) After clicking on the File menu, you can no longer see your document. Instead, you see what Microsoft calls the Backstage view. This is where you:  
Manage your current document and other documents (Save, Open, Close, Print, etc.). See information about your current document (Location, Size, Number of Pages and Words,

Author, etc.) Manage your Word settings and options (Display, AutoCorrect options, customize the Ribbon, etc.)

3. (B) There are a variety of different lines that you can create by using characters other than the dash:  
Type in \*\*\* and press ↵ Enter to create a dotted line.  
Type in \_\_\_ (three underscores) and press ↵ Enter to create a bolder solid line.  
Type in === and press ↵ Enter to create a double line.  
Type in ### and press ↵ Enter to create a three-stripe line with a bold center stripe.  
Type in ~~~ and press ↵ Enter to create a squiggly line.
4. (D) In the world of computers, “boot” means to start up. The difference between a warm boot and a cold boot lies in whether your computer needs to be started from a power-off state.  
To perform a cold boot, just turn on your computer.

#### **Cold Boot**

When you turn the computer off and back on, you're performing what's called a cold boot. During a cold boot, the computer runs self tests on its hardware and loads its operating system before it's ready for you to use.

#### **Warm Boot**

When you restart the system without interrupting power, it's a warm boot. A warm boot is usually done from the operating system and doesn't initiate the computer's self test routine. To perform a warm boot, click the power icon on the Start screen, if shown, and then click “Restart.” If you don't see the power icon, mouse over the bottom right corner of the screen and click “Settings,” and then click “Power” followed by “Reboot.”

5. (D) System software manages and controls computer hardware. Without the system software, a computer cannot operate as a single unit. Operating systems like Windows, MacOS and Linux are examples of system software. The other three options are designed to do a specific task, like adobe photoshop and corel draw, each of them are used to edit images and design logos. Microsoft office includes Word, Excel, Powerpoint, each of which is used to do a specific task. Hence Linux is a system software.
6. (B) Monitors are measured across the diagonal of the screen. This means widescreen monitors

have a higher width than more square monitors with the same number of square inches or square centimeters, so a 21-inch widescreen monitor will actually have less screen space than a 21-inch standard monitor.

7. (B) White lines in printed text or graphics is due to head position. Paper slippage and paper thickness leads to paper getting jammed. Paper thickness can be adjusted in the printer settings. Hence improper ribbon advancement is the correct answer.
8. (D) Space Bar key is the longest key which is at the bottom of the keyboard between the two Alt keys
9. (B) Different view options of “File Explorer” are Extra Large icons, Large Icons, Medium Icons, Small Icons, List, Tiles, Content. The details view displays a medium sized icon along with information about their types and sizes.
10. (D) Windows provides Graphical User Interface (GUI) where graphics are used to communicate with a computer. It uses WYSIWYG which means ‘What You See Is What You Get’. This suggest that whatever appears on the monitor, the same will be on the printout. Plug and Play (PnP) is a capability developed by Microsoft for its Windows 95 and later operating systems that gives users the ability to plug a device into a computer and have the computer recognize that the device is there
11. (B) Deleting / Removing an application means getting rid of the application bundle from the folder Applications, so that the application is neither visible nor runnable. Uninstalling means removing any support and preferences files so that it is as if the application had never been installed. B is right
12. (A) The Box that shows the column name and row number of the active cell is called the Name Box
13. (C) A worksheet has 16,384 columns and 10,48,576 rows. Three types of data can be entered into MS Excel worksheets - Number Data, Text Data and Formula Data.
14. (C) It is always right aligned if you enter a number in a cell
15. (B) To select one cell, we make a click using the mouse. But if we want to select multiple cells at random then we need hold Ctrl key and make the mouse clicks
16. (D) An Icon is a graphic/picture that represents a folder or file
17. (C) it is called the task bar because it shows all the opened processes



18. (A) By holding the Ctrl button one is able to select multiple files randomly
19. (A) They are characters that take up space or have a formatting function but do not appear on the printed page: spaces, tab characters, paragraph breaks, and the like. Even if you prefer to work most of the time without seeing them, you should know how to display them and what they mean. The important thing to know is that they do not print (you will not see them in Print Preview).
20. (A) My computer is the source to access all the data available on all the storage devices
21. (B) On the Home tab, click the Line and Paragraph Spacing command. Click Add Space Before Paragraph or Remove Space After Paragraph from the drop-down menu. In our example, we'll select Add Space Before Paragraph. From the drop-down menu, you can also select Line Spacing Options to open the Paragraph dialog box. From here, you can control how much space there is before and after the paragraph.
22. (C) The data in RAM stays there only while the computer is running; when the computer is shut off, RAM loses its data
23. (C) Option A has barcode signal which is not a device., Option B has printer which is an output device and option D has spreadsheet software which is not a hardware at all. So option C is right
24. (C) Public Documents is the name of the folder in which the files are saved.
25. (D) Reloading of an operating system is rebooting and this happens only when we restart our computer
26. (B) You are selecting merged cells so you cannot just select a part of the merged cells. So that's why both cells are selected.
27. (B) The data selected is from A2:C6, So Art will not come in chart and also the legend for Total would not come.
28. (A) Tim Berners-Lee, in full Sir Tim Berners-Lee, (born June 8, 1955, London, England), British computer scientist, generally credited as the inventor of the World Wide Web. Sir Tim Berners-Lee invented the World Wide Web in 1989.
29. (A) When the cursor changes to a hand when it is placed over certain words, it means the words are hyperlinked. The location of the page it will open when clicking will show at the status bar. Here it is "Sand\_Formations.pdf" document. So when we click on the text, it opens the document "Sand\_Formations.pdf"
30. (C) Monitor is the device where information by the computer is finally displayed
31. (B)
32. (A)
33. (C)
34. (D) Operating system controls the functioning

## SECTION-D

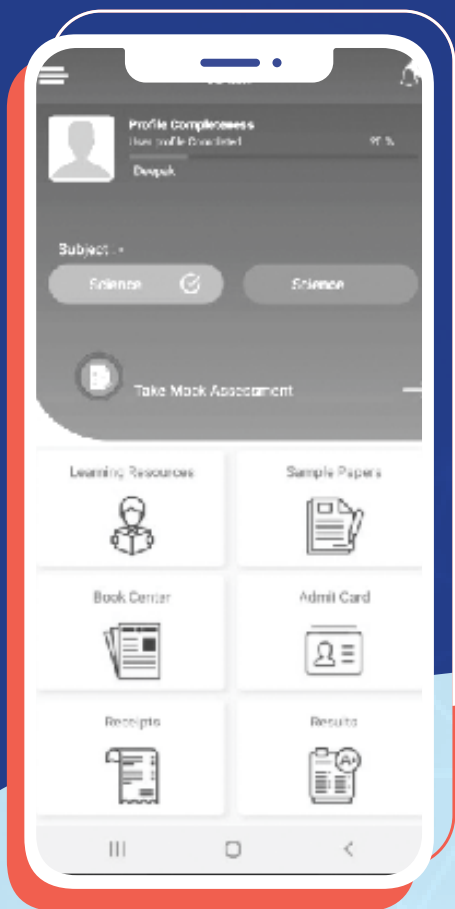
### LOGICAL REASONING

1. (D) Point A lies to the North-west of point D.
2. (A) Sachin and Madan are of same age. But Reema is younger than Madan, which means Reema is younger than Sachin too. Thus, Reema is the youngest.
3. (C) Total cost = 1500, Paper cost =  $1500 \times 20 / 100 = 300$  and Binding cost =  $1500 \times 30 / 100 = 450$ . The ratio is  $300:450 = 2:3$ .
4. (B) This image is not showing happiness in these two individuals.
5. (C)









# Knowledge and Awareness Mapping Platform

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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.

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Email id: [info@kamp.res.in](mailto:info@kamp.res.in)

Website: [kamp.nistads.res.in](http://kamp.nistads.res.in)

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**Kamp Operations & Coordination Office:**

A-100, Sector-65, Noida, Gautam Budhha Nagar, U.P 201301

**KNOWLEDGE AND AWARENESS MAPPING PLATFORM**