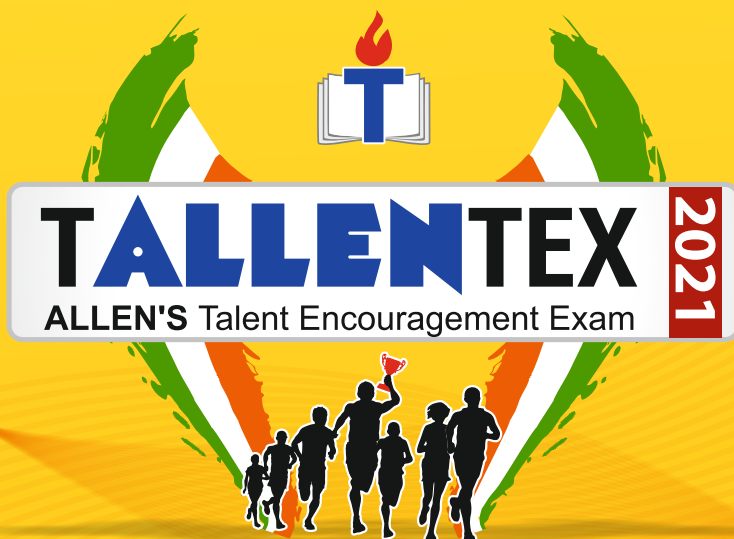


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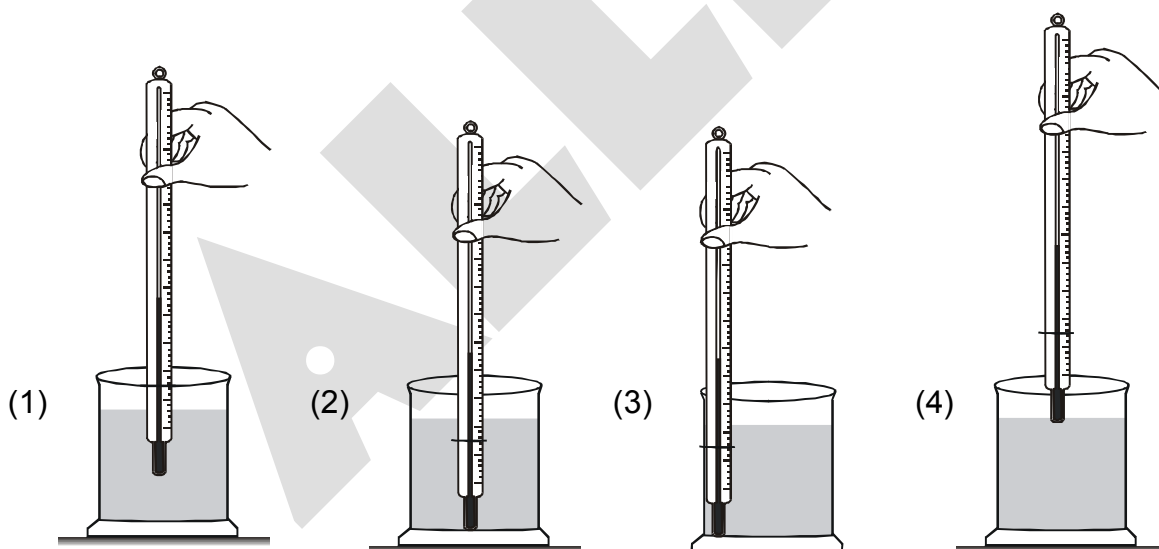


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SECTION - A : PHYSICS

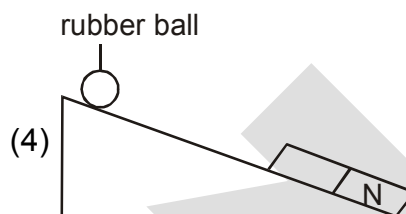
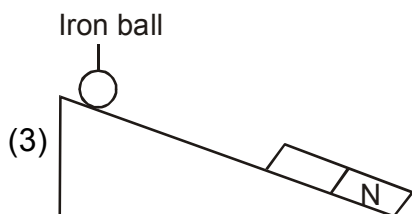
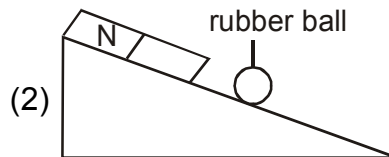
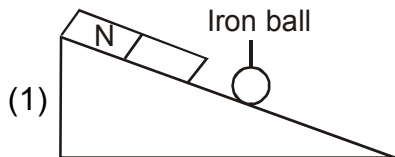
OBJECTIVE

1. The thin wire that gives off light in an electric bulb is called the _____ of the bulb
(1) Fuse (2) Terminal (3) Filament (4) Cladding
2. What happens when water vapor changes to rain drops ?
(1) Heat is absorbed
(2) Heat is released
(3) Heat is first absorbed and then released.
(4) There is no exchange of heat
3. To form a shadow, we need :-
(1) An opaque object (2) A transparent object
(3) A source of light (4) Both (1) & (3)
4. Choose the proper method for using a thermometer to measure the temperature of liquid in the beaker?

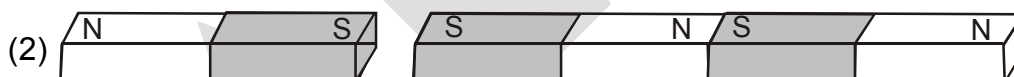
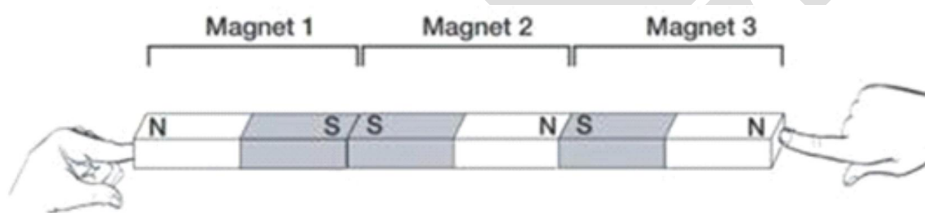


5. Light have various properties. Due to property 'X' of light, we do have eclipses. If light does not have property 'X', then there would be no shadows. Property 'X' of light is _____.
(1) Light reflects back
(2) Light travels in straight line
(3) All objects do not give us light
(4) None of these

6. The diagrams given below show a steel ball, a rubber ball and a magnet placed at different positions on a slope. In which one of the following diagrams would the ball roll down the slope fastest?

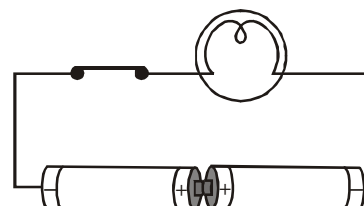


7. Three bar magnets held together as shown below. If they are left freely then What will be the final situation?



8. Why the bulb in the circuit shown in figure does not glow? [Both cells are identical]

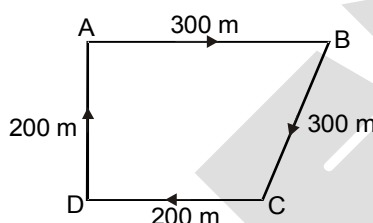
- (1) because the switch is closed.
 (2) because the switch is open.
 (3) because the two cells are not connected properly.
 (4) because the bulb is not connected properly.



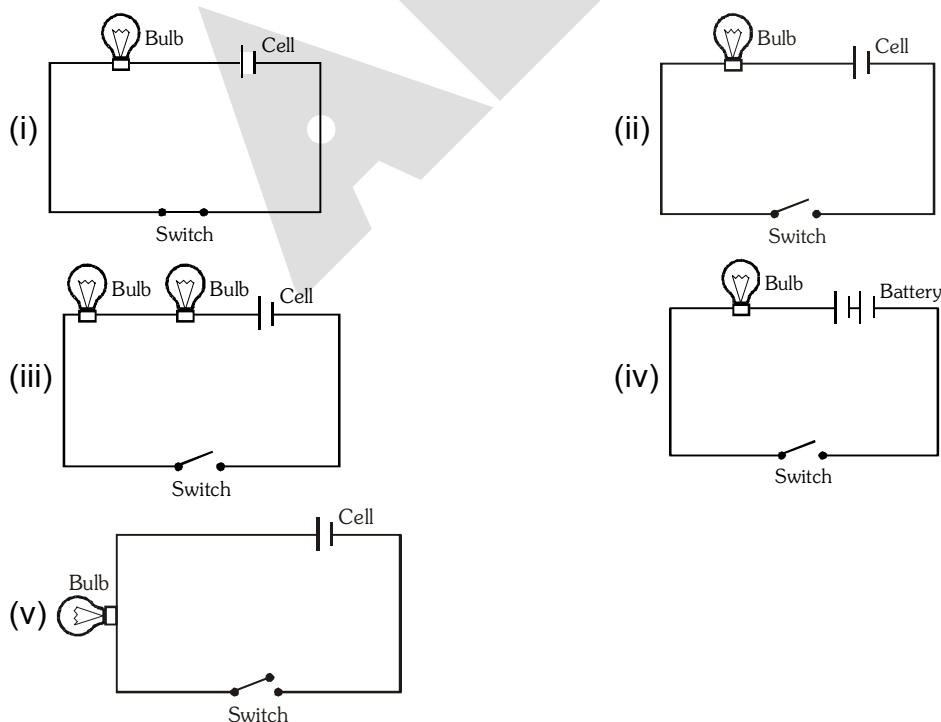
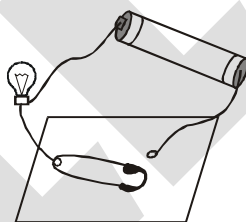
9. A body is moving in a circular path about a fixed point with constant speed. The type of motion is :-
 (1) Circular Motion (2) Rectilinear Motion
 (3) Periodic Motion (4) Both (1) & (3)
10. Which of the following temperature can not be measured by using clinical thermometer.
 (1) 35°C (2) 37°C (3) 45°C (4) 36°C

INTEGER TYPE

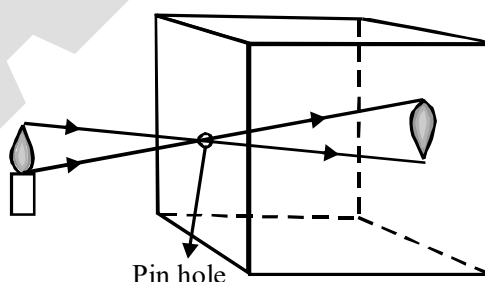
11. How many terminals are there in an electric cell?
12. Consider the motion of a bike starting from point A and reaching A. The total distance covered is _____ km.



13. How many of the following circuit diagram represent the circuit shown in figure below?



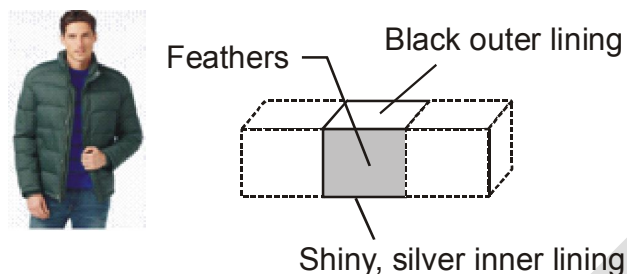
14. While measuring the length of a pencil, the reading of the scale at one end is 2.0 cm and at the other end is 33.1 cm. The length of the pencil is _____ cm.
15. On a cold winter day ; the temperature was 23°F . What would this temperature be in degree celsius?
16. How many element(s) of the following is/are not a circuit element ?
- | | | |
|------------|--------------|--------------------------|
| 1. Battery | 2. Bulb | 3. Resistor |
| 4. Speed | 5. voltmeter | 6. Potential Difference. |
17. How many of the following(s) is/are uses of the wind to mankind ?
- (i) It helps to maintain average temperature on the earth.
 - (ii) It disperses fresh air from one place to another.
 - (iii) It helps in the formation of clouds.
 - (iv) Keeping us cool.
 - (v) Helping us breathe.
 - (vi) Drying our clothes.
 - (vii) Powering yachts and sailing.
 - (viii) Wind can be used for generating electricity using windmills.
18. Figure below shows the image formed by pin hole camera.



By how many methods can this image be made smaller?

- (i) By increasing the distance between object and the hole.
- (ii) By decreasing the distance between object and the hole.
- (iii) By increasing the length of pin hole camera.

19. Jim has bought a new winter jacket which incorporates design features that prevent heat loss to his surroundings. The jacket and its construction are shown below



The jacket has a shiny inner lining and a dark outer lining. It is filled with small feathers, called down, that trap lots of little bubbles of air between their fibres. How many statements are correct regarding the jacket.

- (i) Feathers trap air and thus are good thermal insulators.
 - (ii) Instead of feathers, synthetic material would be better to prevent heat loss.
 - (iii) Silver lining prevents heat transfer through radiation and blocks inner heat to go out.
 - (iv) Instead of black outer lining, white outer lining would absorb more heat.
 - (v) Dark colour clothes are preferred in winter than light coloured clothes.
20. An optician's test card is fixed at 90 cm behind the eyes of a patient who looks into a plane mirror which is at 300 cm in front of him as shown in the

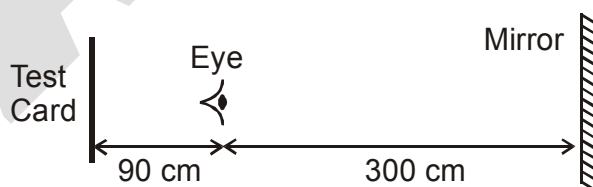


diagram. If the distance of eye from the image of card is ($m \times 230$). Then what is the value of m ?

SECTION - B : CHEMISTRY**OBJECTIVE**

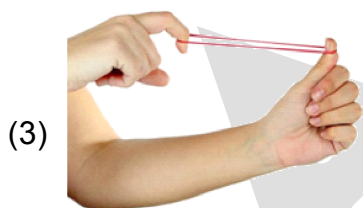
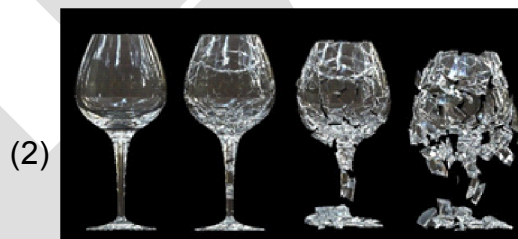
21. Read the following statements.

- (i) The process of making yarn from fibres is called _____.
- (ii) The process of unwinding the silk filaments from the cocoon and combining them together to make a thread of raw silk is called _____.
- (iii) _____ refers to the wool obtained from angora goat.
- (iv) _____ is a fibre, which resembles silk.

Select the option which correctly fills the blanks in any two of the above statements.

- (1) (i) Spinning, (iii) Angora
- (2) (ii) Bailing, (iii) Angora
- (3) (ii) Reeling, (iv) Rayon
- (4) (i) Carding, (iv) Rayon

22. Observe the pictures given below carefully and state which of the following is an irreversible physical change.



23. Which of the following is found in window cleaners?

- (1) Ammonium hydroxide
- (2) Magnesium hydroxide
- (3) Calcium hydroxide
- (4) Sodium carbonate

24. Rise in water level of rivers leads to

- (1) Flood
- (2) Drought
- (3) Water scarcity
- (4) Dry lands

25. Which medicines are used for treating indigestion?

- (1) Antibiotics
- (2) Analgesic
- (3) Antiseptics
- (4) Antacids

26. Which of the following change is irreversible in nature?
 (1) Melting of ice (2) Melting of Chocolate ice cream
 (3) Water to water vapours (4) Rusting of iron
27. Arvind described a fabric as having the following characteristics with respect to burning.
 □ Melts on burning.
 □ Gives a characteristic odour.
 □ Converts into dark hard bead like structures.
 Which of the following fibres can form such a fabric?
 (1) Cotton (2) Silk (3) Wool (4) Nylon
28. The process of collecting rain water in huge pits is called
 (1) Transpiration using water (2) wastage of water
 (3) rain water harvesting (4) transportation of water
29. The transmission lines should not be stretched more tightly between the towers because _____.
 (1) expansion takes place in winter
 (2) expansion takes place in summer and contraction takes place in winter
 (3) expansion and contraction do not depend on temperature
 (4) contraction takes place in summer
30. The given process is used to prepare cloth from fibres. Identify X and Y in the given flow chart.
- ```

 FIBRE --X--> Y --Weaving/Knitting--> Fabric --Stitching--> Cloth

```
- (1) X- Yarn, Y- Spinning (2) X- Spinning, Y- Yarn  
 (3) X- Cotton, Y- Spinning (4) X- Jute, Y – Twisting

### INTEGER TYPE

31. Consider the following statements.  
 I. Solid baking soda does not show any colour change on dry litmus paper.  
 II. The water extract of tamarind does not change the colour of red litmus solution.  
 III. Antacids neutralise the basic nature of our stomach.  
 IV. The pH of coffee is acidic in nature.  
 Find the number of incorrect statement(s).



32. Thermosphere is the \_\_\_\_th layer of atmosphere from the Earth's surface
33. How many of the given statements are correct?
- (i) Sneezing is a non periodic change
  - (ii) Bending of iron rod is physical change
  - (iii) Change of seasons is desirable change
  - (iv) Folding of paper is irreversible change
  - (v) Combustion is a chemical change
  - (vi) Melting of butter is reversible change
  - (vii) Bursting of balloon is a slow change
  - (viii) Freezing of water is a permanent change
34. How many of the following statements are true with respect to chemical changes?
- (i) New substances are formed
  - (ii) No net energy changes are involved
  - (iii) Growth of plants is not a chemical change
  - (iv) Folding of paper is not a chemical change
  - (v) Glowing of electric bulb is a chemical change
  - (vi) Chemical changes are usually irreversible
  - (vii) Chemical changes are always exothermic
35. How many of the following sentence are correct?
- (i) Rayon is a natural fibre
  - (ii) Workers in wool industry generally suffer from sorter's disease
  - (iii) Bakharwal is an Indian breed of sheep
  - (iv) Shearing is usually done in summer season
36. An empty glass tumbler with a piece of cotton wool stuck into its bottom was lowered in an upside down position into a tumbler of water. In the experiment, the cotton wool did not get wet even when glass was fully submerged in water.  
Read the given statements about the experiment.
- (i) Air has mass.
  - (ii) Air occupies space.
  - (iii) Air cannot be compressed.
  - (iv) Air exerts pressure upside down.
  - (v) Air exerts pressure upwards.
  - (vi) Air does not have any shape.
  - (vii) Air is invisible to us.
  - (viii) Air and water are different substances.
- Out of the above statements, how many are not correct for the given experiment.
37. How many of the following is/are irreversible changes ?
- (i) Liquefaction of gases
  - (ii) Burning of paper
  - (iii) Cutting of trees
  - (iv) Making of veg pulao
  - (v) Bursting of a balloon
  - (vi) Making glucose solution in water

38. How many statements given below is/are correct?
- (i) Silk is a synthetic fibre
  - (ii) Sheep are sheared usually in the summer season.
  - (iii) The silkworms feed continually on a huge amount of mango leaves to encourage growth.
  - (iv) In sorting, the wool is sorted into sections of different quality fibres.
  - (v) The silkworm will begin spinning its silk cocoon by rotating its body in a figure-8 movement around 300,000 times - a process which takes around 90 days.
  - (vi) Dyeing can also be done after the silk has been woven into fabric.
39. How many of the given solutions is/are acidic in nature ?  
Lime water, milk of magnesia, common salt solution, lemon juice, vinegar, orange juice
40. How many of the given choices are correct regarding fibres?
- (i) Wool and Silk are animal fibres.
  - (ii) Cotton and jute are vegetable fibres.
  - (iii) Burning of artificial fibres give the smell of burning paper.
  - (iv) Silk is a vegetable fibre.
  - (v) The animal fibres are largely made up of proteins.
  - (vi) Wool is an elastic fibre.

## SECTION - C : BIOLOGY

### OBJECTIVE

41. Which of the following statements is correct regarding veins?
- (1) Carry blood from an organ towards the heart
  - (2) All veins carry oxygenated blood with single exception
  - (3) Carry blood from heart towards the organ
  - (4) All of these
42. **Assertion :** We develop some compost making area near the landfill.  
**Reason :** It is done to utilize some of the useful components of garbage.
- (1) Both Assertion and Reason are true and Reason is the correct explanation for Assertion.
  - (2) Both Assertion and Reason are true but Reason is not the correct explanation for Assertion.
  - (3) Assertion is true and Reason is false
  - (4) Assertion is false and Reason is true

43. Which of the following adaptation of camel helps it survive in the desert hot environment?
- (A) The camel has long legs which help to keep its body away from the hot sand in the desert.  
(B) A camel can drink large amount of water and store it in the body.  
(C) A camel passes less amount of urine  
(D) Its dung is dry and it does not sweat.  
(E) A camel has large and flat feet which help it to walk easily on soft sand.  
(F) Camel store fat in its hump.
- (1) A,B and C            (2) A,B,C ,D and F    (3) B,C,D and E        (4) A,B,C,D, E and F
44. Which one is not a part of circulatory system :
- (1) Blood                      (2) Blood vessel        (3) Heart                      (4) Lungs
45. Trypsin is a digestive enzyme which occurs in mammals and digests
- (1) Starch in buccal cavity in an alkaline medium  
(2) Protein in stomach in an acidic medium  
(3) Protein in duodenum in an acidic medium  
(4) Protein in duodenum in an alkaline medium
46. Which of the following statements are correct regarding respiration in plants?
- (i) Respiration is the process of releasing energy from food.  
(ii) Respiration takes place individually in all parts of the plants like stem, roots, leaves etc  
(iii) The rate of respiration is slow in plants whereas it is faster in humans and animals..  
(iv) Respiration takes place both day and night.
- Select the correct answer from the codes given below:
- (1) I and III are correct                      (2) I and II are correct  
(3) I, II III and IV are correct              (4) II, III and IV are correct
47. The absorption of nutrients and exchange of respiratory gases between blood and tissues takes place in
- (1) Veins                      (2) Arteries                      (3) Heart                      (4) Capillaries
48. Pitcher plant traps Insects because It
- (1) is a heterotroph  
(2) grows in soils which lack in nitrogen  
(3) does not have chlorophyll  
(4) has a digestive system like human beings

49. Which of the following is a biodegradable?
- |              |                      |
|--------------|----------------------|
| (1) Plastics | (2) Metal containers |
| (3) Glass    | (4) Leaves           |
50. Skeleton of human body is made up of
- |                     |               |
|---------------------|---------------|
| (1) Bones           | (2) Cartilage |
| (3) Both '1' and '2 | (4) Muscles   |

### INTEGER TYPE

51. Which of the following statements is/are false?
- (i) Living things can grow
  - (ii) Living things can respire
  - (iii) Living things need Food air, water
  - (iv) Living things can live forever
  - (v) Living thing can reproduce
  - (vi) Living thing can not reproduce
  - (vii) Living things can not have young ones
  - (viii) Living things are not sensitive to stimuli
52. How many statements are correct-
- (i) It gives shape and form to our body.
  - (ii) It helps body in performing different body movements.
  - (iii) It protects our delicate internal organs.
  - (iv) It performs all the vital activities of body.
53. There are some organisms given in the box.
- |                                                      |
|------------------------------------------------------|
| Frog, Fish, Earthworm, Bat, Cockroach, Human, Insect |
|------------------------------------------------------|
- How many of the following organisms respire through lungs?
54. Read the following statements.
- (i) Gas exchange in the alveoli happens through capillaries.
  - (ii) Oxygenated blood is pumped to all other parts of the body from left ventricle.
  - (iii) Arteries have thicker walls than veins
  - (iv) There are no valves in a heart.
  - (v) Capillaries are smallest blood vessel.
  - (vi) Blood help in transportation of digested food.
- How many of the following statements is /are correct?

55. Following statements are given about 'Photosynthesis'.

- (i) The solar energy is captured by the leaves and stored in the form of food.
- (ii) Later on carbohydrates ultimately get converted into chlorophyll.
- (iii) In this process solar energy is converted into chemical energy.
- (iv) Photosynthesis takes place only in leaves.

How many of the following statements is/are correct regarding photosynthesis?

56. How many statements are correct-

- (i) Compost prepare by the use of micro organism
- (ii) Vermicompost is prepare by the use of Earthworm
- (iii) Fallen leaves, vegetable peels are nonbiodegradable things
- (iv) Redworm have teeth
- (v) We cannot recycle paper
- (vi) Plastic is harmful for nature
- (vii) Safai karmachari collect the garbage

57. How many objects are biodegradable in given image –



58. Read the following statements

- (i) The bones are soft while cartilages are hard
- (ii) Skeleton system gives the body support and protect inner organs
- (iii) Doctors use X-ray films to examine the injuries of bones
- (iv) The bones of cranium are flat and held firmly like a zipper
- (v) Upper jaw is movable
- (vi) Five vertebrae of hip and four vertebrae of tail are fused

How many statements are correct

59. Read the following statements:

- (i) Habitat includes both living and non living things
- (ii) Micro-organisms are a part of abiotic components
- (iii) Animals live in isolation and are independent
- (iv) The flowers of sunflower always faces the sun
- (v) Leaves in aquatic plants are reduced in size to minimize their evaporating surface.
- (vi) All living organisms need water for their survival.

How many statements are correct

60. Read the following statements

- (i) Red blood cells and some white blood cells are produced in the bone marrow
- (ii) Organs inside our body are called internal organs
- (iii) Organs which can be seen from outside are called external organs
- (iv) A group of similar organs with same kind of function is called an organ
- (v) The organs are made of many kinds of cells and tissues.
- (vi) The body parts which are specialized to do important body activities are called organs.

How many statements are correct

## SECTION-D : MATHEMATICS

### OBJECTIVE

61. Using tally marks, which one of the following represents the number eight :

- (1)  (2)  (3)  (4) 

62. The value of  $x$  if  $x - 3 = 5$  is

- (1)  $-8$  (2)  $7$  (3)  $8$  (4)  $10$

63. The perimeter of a square is 16cm. Find the length of each side.

- (1) 2cm (2) 8cm (3) 4cm (4) 6cm

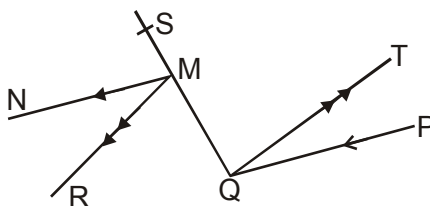
64. A bus and a bike start from a point and travel 27 km. The bus stops every 9 km and the bike makes stops every 6 km. How far are they from the destination before they stop together for the last time before reaching the destination ?

- (1) 3 km (2) 6 km (3) 9 km (4) 12 km

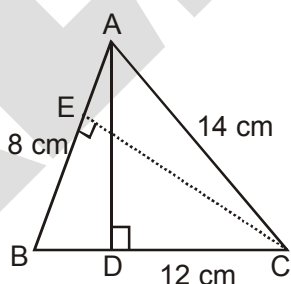
65. Two times  $x$  multiplied to 3 times  $y$  subtracted from the product of  $x$  and  $y$  equals :-

- (1)  $5xy$  (2)  $-5xy$  (3)  $6xy$  (4)  $-6xy$

66. In the given figure,  $MN \parallel PQ$  and  $RM \parallel QT$ . If  $\angle SMN = 75^\circ$ ,  $\angle MQT = 80^\circ$ ,  $\angle RMN = x$  and  $\angle PQT = y$ , find the values of  $x$  and  $y$  respectively.



- (1)  $35^\circ, 25^\circ$       (2)  $25^\circ, 25^\circ$       (3)  $25^\circ, 35^\circ$       (4)  $65^\circ, 35^\circ$
67. Which of the following statements is correct ?  
 (a)  $(20 - 3) - 5 = 20 - (3 - 5)$   
 (b) Five negative and six positive integers are being multiplied, the sign of the product will be positive.  
 (c) The multiplicative identity for integers is  $(-1)$ .  
 (d) Integers are not closed under division.  
 (1) Both (b) and (d)    (2) Only (c)    (3) Only (d)    (4) Both (a) and (c)
68. Which of the following fractions is recurring decimal?  
 (1)  $\frac{237}{625}$       (2)  $\frac{125}{192}$       (3)  $\frac{1000}{1024}$       (4)  $\frac{2008}{2560}$
69. In  $\triangle ABC$   $AB = 8\text{ cm}$ ,  $BC = 12\text{ cm}$  &  $AC = 14\text{ cm}$ .  $AD$  is altitude on  $BC$  and  $CE$  is altitude on  $AB$ . If  $AD = 6\text{ cm}$  then  $CE$  equals to



- (1) 9 cm      (2) 14 cm      (3) 15 cm      (4) 20 cm
70. A testing centre conducted a 'Spelling Test' for grade 6 students. The data below represents the results of the test. \* = 5 Students

| Grades | Number of Students |
|--------|--------------------|
| A+     | ***                |
| A      | *****              |
| B+     | ****               |
| B      | ***                |

Which grade was received by the maximum number of students ?

- (1) B+      (2) A      (3) A+      (4) B

71. In an exam (+4) marks are allotted for every correct answer and (−1) mark allotted for every wrong answer. If Rahul scored a total of −4 marks and corrected 5 questions then how many he attempted wrongly.

- (1) 10 (2) 24 (3) 5 (4) 8

72. The angles of a triangle are in the ratio 3: 2: 5 The smallest angle is ?

- (1) 40° (2) 36° (3) 90° (4) 72°

73. Find the value of :  $-\frac{5}{13} \div \frac{10}{13}$

- (1) 0 (2) 1 (3)  $\frac{1}{2}$  (4)  $-\frac{1}{2}$

74. If  $64 \times 64 \times 64 \times 64 = 8^x$ , then x is equal to

- (1) 4 (2) 8 (3) 6 (4) 5

75. The additive inverse of − 68 is -----

- (1) 68 (2) 86 (3) − 36 (4) − 68

76. The value of  $\frac{7}{16} \times \frac{8}{24} \div \frac{7}{3}$  is

- (1)  $\frac{7}{3}$  (2)  $\frac{1}{16}$  (3)  $\frac{3}{7}$  (4) 16

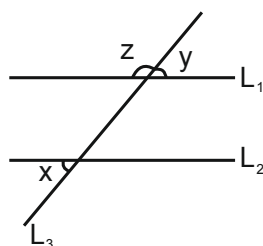
77. Which one is greater ?

$\frac{3}{4}, \frac{5}{6}, \frac{7}{9}, \frac{11}{12}$

- (1)  $\frac{3}{4}$  (2)  $\frac{7}{9}$  (3)  $\frac{11}{12}$  (4)  $\frac{5}{6}$

78.  $L_1$  and  $L_2$  are parallel lines and  $L_3$  cuts each of them.

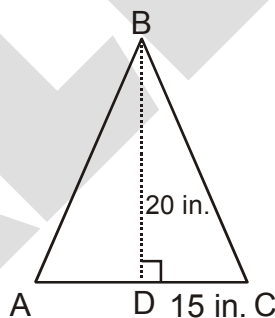
If  $z = 150^\circ$ , then x is :-



- (1) 30° (2) 60° (3) 90° (4) 150°



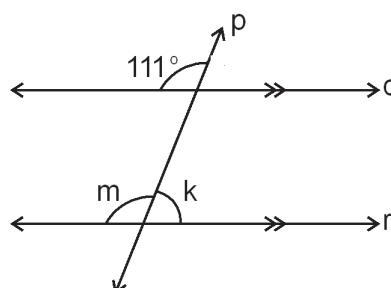
79. In the first week of July, 2020 there were 1400 covid-19 positive cases in Guwahati; while in the entire month of July there were 6200 covid-19 positive cases in Patna. Then, the ratio of average daily cases of covid -19 in Guwahati to that in Patna during July is approximately :-
- (1) 1 : 2                      (2) 2 : 7                      (3) 7 : 2                      (4) 1 : 1
80. Given  $\triangle PQR \cong \triangle XYZ$  and side  $PQ = 7$  cm. Then side  $XY$  is :-
- (1) 5 cm                      (2) 7 cm                      (3) 4 cm                      (4) 8 cm
81. Planet Mars is about  $2.28 \times 10^{11}$  m away from the Sun. If light travels at  $3 \times 10^8$  m/sec, then how long does the sunlight take to reach Mars?
- (1)  $7.6 \times 10^2$  hours                      (2)  $7.6 \times 10^1$  seconds  
(3)  $0.76 \times 10^4$  seconds                      (4)  $7.6 \times 10^2$  seconds
82. By how much is  $a^4 + 4a^2b^2$  more than  $a^4 - 6a^2b^2$ ?
- (1)  $-10a^2b^2$                       (2)  $-2a^2b^2$                       (3)  $2a^2b^2$                       (4)  $10a^2b^2$
83. Point D is the midpoint of  $\overline{AC}$ . Find the perimeter of  $\triangle ABC$ .



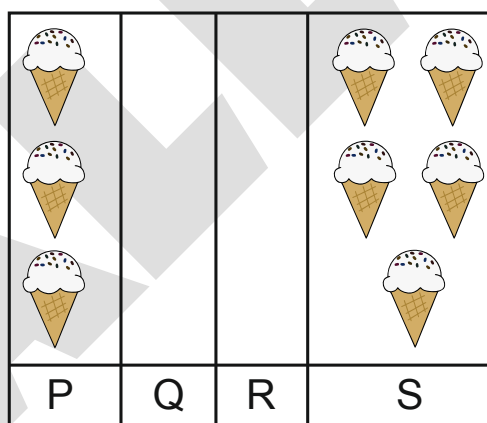
- (1) 60 inches                      (2) 65 inches                      (3) 80 inches                      (4) 120 inches
84. Find the cost of 5 pencils and 2 pens in terms of  $x$ , if the cost of 1 pencil is Rs.  $3x$  and that of 1 pen is Rs.  $(x + 4)$
- (1) Rs.  $(3x + 3)$                       (2) Rs.  $(15x + 4)$   
(3) Rs.  $(17x + 8)$                       (4) Rs.  $(17x + 5)$
85. On simplifying  $20 - \{4 - [7 + (14 - (-3))]\}$  we get
- (1) 20                      (2) 15                      (3) 25                      (4) 40

INTEGER TYPE

86. Manish thinks of a number. If he takes 5 away from  $\frac{3}{7}$  of the number, the result is 4. Find the number.
87. In figure, find the value k.



88. Find the value of  $[-6 + (-4) + (-6) + (-4) + (-6) + (-4)] + 30$
89. What is the length of the wooden strip required to frame a photograph of length & breadth 35 cm and 25 cm respectively ?
90. The incomplete pictograph shows the number of ice-creams bought by four boys

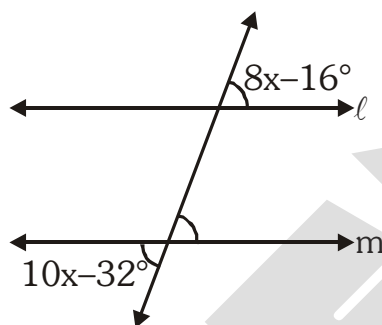


 represents 10 ice-creams

The total no of ice-creams bought by them was 160. Q and R bought the same no of ice-creams. How many ice-creams did Q buy ?

91. If 23 is subtracted from twice of a number gives 9 then find the number
92. A room has two rectangular walls of dimensions  $20 \times 16$  feet and two square walls of dimensions  $16 \times 16$  feet. One of the square walls has a door of dimensions  $8 \times 3$  feet. Find the cost of painting the room at the rate of Rs 0.5 per square feet :

93. A box of volume  $60 \text{ m}^3$  has  $24 \text{ m}^3$  of water in it. The maximum number of iron cubes each of volume  $9 \text{ m}^3$  that can be put in the box so that water doesn't overflow is :-
94. Eight more than twice a number is 10. What is the number?
95. In the given figure, if  $\ell \parallel m$ , then the value of  $x$  is



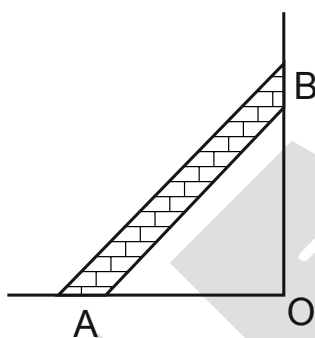
96. Mr. Gupta bought 829 oranges. 69 of them were rotten and thrown away. He sold 376 of them and packed the rest equally into bags each containing 12 oranges. How many such bags of oranges did he have ?
97. How many 2's are multiplied to get 512 ?
98. What is the degree of the polynomial  $4x^2y - 7y^3x + 9xy^2$  ?
99. ABC and DEF are two congruent and equilateral triangles. If  $AB = 3\text{cm}$ , then perimeter of triangle DEF is?
100. Find the coefficient of 'a' if  $(2a^2 - 5a + 8)$  is subtracted from  $(3a^2 + 4a - 6)$ .
101. Add the additive inverse of  $(-15 + 16 - 22 + 8)$  to the product of  $-1, -2, -3$  and  $-4$ .

102. In a  $\triangle ABC$ ,  $\angle A = 50^\circ$ ,  $\angle B = 70^\circ$  then the value of  $\angle C$  in degree is

103. If  $\left(\frac{(-4)^3 \times 7^2}{343 \times 1024}\right)^2 \times \frac{2^4 \times 3^2}{5^2} \times 625 = \left(\frac{15}{28}\right)^n$ , then n equals :-

104. What is the coefficient of x in  $4x^3 - 2x + 10 + 6x$ .

105. AB is a ladder of length 13m, which is slipping on the ground. At a moment, if distance of point A from O is 12m, the height OB at that instant in meters is :

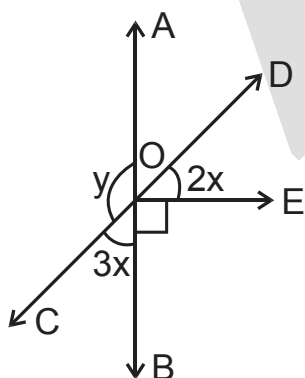


106. Find the value when  $a = 5$  and  $b = -3$   
 $(a^2 + ab) + 6 - ab$

107. Simplify :  $27 \text{ of } \frac{1}{3} - \frac{1}{19} \left[ \frac{1}{3} \{45 + (56 - 10 + 7)\} + 105 \right]$

108. A number increased by 6 gives twice the number, then the number is -

109. In figure, find  $y - x$ .



110. Simplify :  $3 \times [-2 - \{4 + 2 \times (6 \times 2 \div 4 + \overline{7-3})\}]$

## SECTION-E : MENTAL ABILITY

### OBJECTIVE

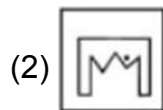
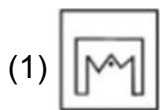
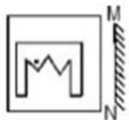
111. Choose the word which is least like the others word in a group?

- (1) Calendar                      (2) Date                      (3) Day                      (4) Month

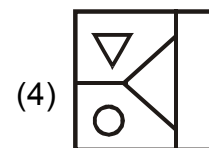
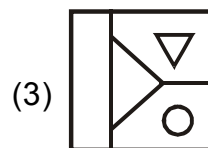
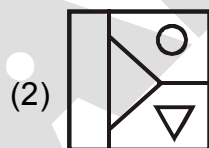
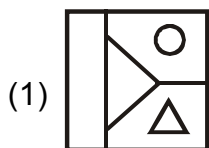
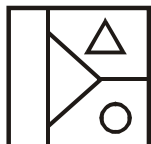
112. **Directions:** In each of the following questions, arrange the given words in the sequence in which they occur in the dictionary and then choose the correct sequence.

1. Preach                      2. Praise                      3. Precinct                      4. Precept  
 5. Precede  
 (1) 2, 1, 5, 4, 3                      (2) 2, 1, 3, 4, 5                      (3) 2, 5, 1, 4, 3                      (4) 1, 2, 5, 4, 3

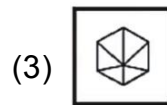
113. If a mirror is placed on the line MN, then which of the answer figures is the correct image of the given figure?



114. Select the correct water image from four alternatives (1), (2), (3) and (4).



115. Choose the alternative which is closely resembles the Embedded figure of the given figure.



**116.** How many pairs of letters are there in the word "CASTRAPHONE" which has as many letters between them in the word as in the alphabet?

- (1) 3 (2) 4 (3) 5 (4) 6

**117. Directions :** Study the following information carefully and answer the questions given below.

Eight family members Dhiruv, Garima, Avinash, Varsha, Aakash, Deepti, Charu and Moksha are sitting around a square table in such a way that two persons sit on each of the four sides of the table facing the centre. Members sitting on opposite sides are exactly opposite to each other.

Aakash and Garima are exactly opposite to each other. Deepti is immediately right to Garima. Dhiruv and Moksha are sitting on the same side, Moksha is exactly opposite of Avinash who is to the immediate left of Varsha. Dhiruv is towards right of Deepti.

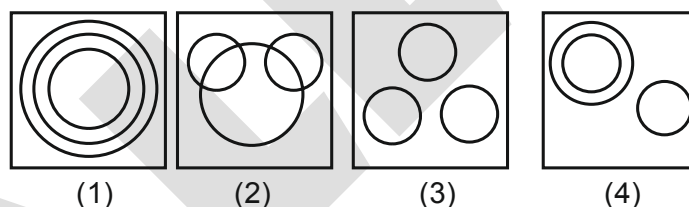
Who is sitting opposite to Dhiruv?

- (1) Charu (2) Deepti (3) Varsha (4) Moksha

**118.** Choose the word which is least like the others word in a group?

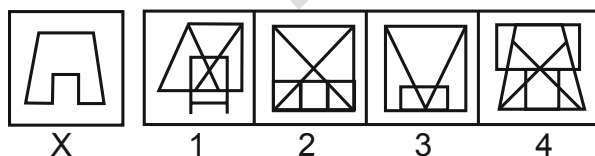
- (1) Moon (2) Sun (3) Universe (4) Star

**119.** Choose the Venn Diagram which best illustrates the relationship between the three classes in each of these questions



Sun, Planets, Earth

**120.** In the given question, you are given a fig (x) followed by four alternative figures (1), (2), (3) and (4) such that fig. (x) is embedded in one of them. Trace out the alternative figure which contains fig. (x) as its part.



**121.** How many such letters are there in the word "ACCELERATION", each of which is as far away from the beginning of the word as it is from the beginning of the English Alphabet ?

- (1) None (2) One (3) Two (4) Three

122. Choose the alternative which is closely resembles the mirror image of the given word:

**SUPERVISOR**

(1) **Я02IVЯЭ9U2**

(2) **2NƆEBΛI20Ɔ**

(3) **Ɔ20NƆ2EBIΛ**

(4) **2NƆEBΛI02Ɔ**

(1) 1

(2) 2

(3) 3

(4) 4

123. Study the diagram given below and answer the given question:



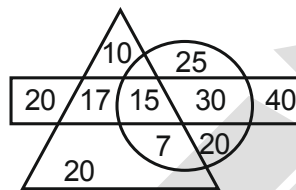
→ Persons who takes tea



→ Persons who takes coffee



→ Persons who takes wine



How many persons who take tea and wine but not coffee ?

(1) 20

(2) 17

(3) 25

(4) 15

124. Choose the word which is least like other words in the group.

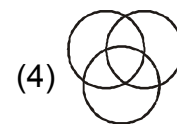
(1) Zebra

(2) Lion

(3) Tiger

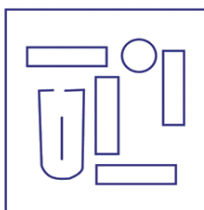
(4) Horse

125. Blue-eyed People, Women, Doctors



126. Which figure includes all the specific parts of the question figure?

Question figure



Answer figure



(1)

(2)

(3)

(4)

127. A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Which letter is in the middle of 13th letter from the left and 4th letter from the right?

- (1) R (2) I (3) J (4) S

128. **Directions:** Read the following information carefully and answer the questions which follow.

A, B, C, D, E, F, G and H are sitting in a circle facing its centre. D is sitting opposite to H who is sitting in the middle of G and F. E is sitting to the immediate left of D and to the immediate right of B. A is opposite to B and between G and C.

Who is sitting immediately to the right of D?

- (1) A (2) C (3) E (4) G

129. Three of the following four are alike in a certain way and hence form a group. Which is the one that does not belong to that group?

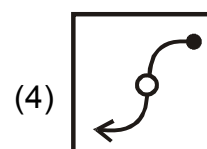
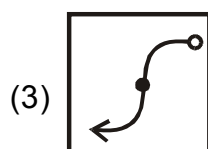
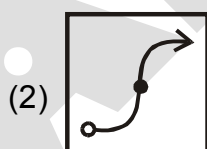
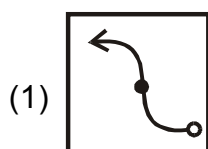
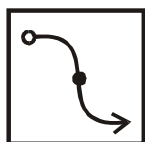
- (1) Shirt (2) Shoe (3) Ring (4) Cobbler

130. **Direction:** In each of the following questions you are given a combination of alphabets and/ or numbers followed by four alternatives (1), (2), (3) and (4). Choose the alternatives which is closely resembles the water image of the given combination.

destination

- (1) desitnaiton (2) desitnaitab (3) noitsnitæb (4) noitsnitæab

131. Find the correct mirror image of the given figure.



132. Find out the alternative figure which contains figure (X) as its part.



(X)



(1)



(2)



(3)



(4)

133. Arrange these words in alphabetical order and tick the one that comes last

1. Abandor 2. Actuate 3. Accumulate 4. Acquit 5. Achieve  
(1) Actuate (2) Accumulate (3) Acquit (4) Achieve



134 Find the odd one out

- (1) Flower : Petal    (2) Circle : Arc    (3) Cover : Page    (4) Chair : Leg

135. In a class there are seven students (including boys and girls) A, B, C, D, E, F and G. They sit on three benches I, II and III. Such that at least two students on each bench and at least one girl on each bench. C who is a girl student, does not sit with A, E and D. F the boy student sits with only B. A sits on the bench I with his best friends. G sits on the bench III. E is the brother of C.

How many girls are there out of these 7 students ?

- (1) 3                      (2) 3 or 4                      (3) 4                      (4) Data inadequate

### INTEGER TYPE

136. In a certain code language, PLATE is written as 32876 and BLEND is written as 52694. How is END written in that code language?

137. Sophy starts at point T, walks straight to point U which is 4 ft away. She turns left at  $90^\circ$  and walks to W. which is 4 ft away, turns  $90^\circ$  right and goes 3 ft to P, turns  $90^\circ$  right and walks 1 ft to Q, turns left at  $90^\circ$  and goes to V, which is 1 ft away and once again turns  $90^\circ$  right and goes to R, 3 ft away. What is the distance between T and R?

138. If '+' means ' $\div$ ', '-' means ' $\times$ ', ' $\times$ ' means '+', ' $\div$ ' means '-', find the value of  $45 + 9 - 3 \times 15 \div 2 = ?$

139. In a row of 25 children, Nayan is 14<sup>th</sup> from the right end. Arun is 3<sup>rd</sup> to the left of Nayan in the row. What is Arun's position from the left end of the row ?

140. What will come in place of question mark ?

2, 10, 30, 68, ?

141. X travelled from a point straight towards east at a distance of 80m. He turned to his right and walked 40m. He again turned to his right and walked 80m. He then turned his left and walked 20m and took left and again walked 80m. Now he turned towards his left and walked 60m and stopped. How far is he from the starting point?

142. How many 1's are there in the series which are preceded by 4 and followed by 3?

9 7 4 6 1 3 2 8 7 4 1 3 8 3 2 5 6 7 4 3 9 5 8 2 4 1 3 7 4 6 3

143. If 'R' stands for '-', 'A' stands for '+', 'B' stands for ' $\div$ ' and 'C' stands for ' $\times$ ', then what is the value of the given equation ?

$25 A 37 C 12 B 4 R 1 = ?$

- 144.** In a certain code, 15789 is written as AXBTC, 2346 is written as MPDU. How is TAX written in that code?
- 145.** In the following series, how many such odd nummmbers are there which are divisible by 3 or 5, then followed by odd numbers and then also followed by even numbers ?  
12, 19, 21, 3, 25, 18, 35, 20, 22, 21, 45, 46, 47, 48, 9, 50, 52, 54, 55, 56
- 146.** 7, 26, 63, 124, 215, 342, ?
- 147.** 1, 6, 15, ?, 45, 66, 91
- 148.** The length and breadth of a room are 8 m and 6 m respectively . A cat runs along all the four walls and finally along a diagonal order to catch a rat. How much total distance is covered by the cat in meter?
- 149.** In a certain code language '134' means 'good and tasty' ; '478' means 'see good pictures' and '729' means 'pictures are faint'. Which of the following digits stands for 'see'?
- 150.** If x stands for + ,  $\div$  stands for  $-$  , + stands for  $\times$  and  $-$  stands for  $\div$ , then  $20 \times 8 \div -4 + 2 = ?$
- 151.** 7, 10, 8, 11, 9, 12, \_\_\_\_ . What number should come next ?
- 152.** In a row of letters, a letter is 5th from left end and 12th from the right end. How many letters are there in a row ?
- 153.** A boy rode his bicycle Northward, then turned left and rode 1 km and again turned left and rode 2 km. He found himself 1 km west of his starting point. How far did he ride northward initially in km?
- 154.** In a certain code '415' means 'milk is hot'; '18' means 'hot soup'; and '895' means 'soup is brown'. What number will indicate the word 'brown'?
- 155.** If '-' stands for ' $\div$ ', '+' stands for ' $\times$ ', ' $\div$ ' stands for '-' and ' $\times$ ' stands for '+', find out equation value ' $30 - 6 + 5 \times 4 \div 2$ ' = ?
- 156.** What number should come next in the series 36, 34, 30, 28, 24, ...?

157. How many such digits are there in the number 7346295 which are as far away from the beginning of the number, as they will be when arranged in ascending order within the number?
158. A child went 90 m in the East to look for his father, then he turned right and went 20m. After this he turned right and after going 30m he reached to his uncle's house. His father was not there. From there he went 100 m to his north and met his father. How far did he meet his father from the starting point ?
159. If Z means '-', Y means 'x', W means '÷' and V means '+' then  $2 \text{ V } 90 \text{ Y } 4 \text{ W } 4 \text{ Z } 8 = ?$
160. Study the following information carefully and answer the questions given below.
- In a certain code language,**
- 'People Quantity Indication' is written as '1 5 2',
- 'Straight Infuse Health' is written as '4 6 3',
- 'Quantity Beyond Straight' is written as '7 1 3',
- 'Indication Straight Health' is written as '3 2 4'.
- What is the sum of the code for 'Quantity Infuse Health'?

\* \* \* \* \*

**ANSWER KEY**

| Que. | 1   | 2   | 3   | 4       | 5    | 6   | 7    | 8     | 9      | 10  |
|------|-----|-----|-----|---------|------|-----|------|-------|--------|-----|
| Ans. | 3   | 2   | 4   | 1       | 2    | 3   | 2    | 3     | 4      | 3   |
| Que. | 11  | 12  | 13  | 14      | 15   | 16  | 17   | 18    | 19     | 20  |
| Ans. | 2   | 1   | 2   | 31.1 cm | -5°C | 2   | 8    | 1     | 3      | 3   |
| Que. | 21  | 22  | 23  | 24      | 25   | 26  | 27   | 28    | 29     | 30  |
| Ans. | 3   | 2   | 1   | 1       | 4    | 4   | 4    | 3     | 2      | 2   |
| Que. | 31  | 32  | 33  | 34      | 35   | 36  | 37   | 38    | 39     | 40  |
| Ans. | 1   | 4   | 5   | 3       | 3    | 7   | 4    | 2     | 3      | 4   |
| Que. | 41  | 42  | 43  | 44      | 45   | 46  | 47   | 48    | 49     | 50  |
| Ans. | 1   | 1   | 4   | 4       | 4    | 3   | 4    | 2     | 4      | 3   |
| Que. | 51  | 52  | 53  | 54      | 55   | 56  | 57   | 58    | 59     | 60  |
| Ans. | 4   | 3   | 3   | 5       | 2    | 4   | 9    | 4     | 3      | 4   |
| Que. | 61  | 62  | 63  | 64      | 65   | 66  | 67   | 68    | 69     | 70  |
| Ans. | 4   | 3   | 3   | 3       | 2    | 2   | 3    | 2     | 1      | 2   |
| Que. | 71  | 72  | 73  | 74      | 75   | 76  | 77   | 78    | 79     | 80  |
| Ans. | 2   | 2   | 4   | 2       | 1    | 2   | 3    | 1     | 4      | 2   |
| Que. | 81  | 82  | 83  | 84      | 85   | 86  | 87   | 88    | 89     | 90  |
| Ans. | 4   | 4   | 3   | 3       | 4    | 21  | 69°  | 0     | 120 cm | 40  |
| Que. | 91  | 92  | 93  | 94      | 95   | 96  | 97   | 98    | 99     | 100 |
| Ans. | 16  | 564 | 4   | 1       | 8    | 32  | 9    | 4     | 9 cm   | 9   |
| Que. | 101 | 102 | 103 | 104     | 105  | 106 | 107  | 108   | 109    | 110 |
| Ans. | 37  | 60° | 2   | 4       | 5    | 31  | 2    | 6     | 108°   | -60 |
| Que. | 111 | 112 | 113 | 114     | 115  | 116 | 117  | 118   | 119    | 120 |
| Ans. | 1   | 1   | 2   | 2       | 1    | 4   | 3    | 3     | 4      | 4   |
| Que. | 121 | 122 | 123 | 124     | 125  | 126 | 127  | 128   | 129    | 130 |
| Ans. | 2   | 1   | 2   | 4       | 4    | 1   | 1    | 2     | 4      | 1   |
| Que. | 131 | 132 | 133 | 134     | 135  | 136 | 137  | 138   | 139    | 140 |
| Ans. | 3   | 4   | 1   | 3       | 2    | 694 | 8 ft | 28    | 9th    | 130 |
| Que. | 141 | 142 | 143 | 144     | 145  | 146 | 147  | 148   | 149    | 150 |
| Ans. | 80  | 2   | 30  | 815     | 2    | 511 | 28   | 38    | 8      | 24  |
| Que. | 151 | 152 | 153 | 154     | 155  | 156 | 157  | 158   | 159    | 160 |
| Ans. | 10  | 16  | 2   | 9       | 27   | 22  | 2    | 100 m | 84     | 11  |