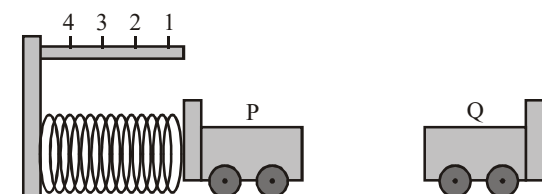


SECTION - A : PHYSICS
OBJECTIVE

1. When 2 Mirrors are kept at 60° angle, number of observable images formed are :
(1) 5 (2) 6 (3) 4 (4) 3
2. While jumping out from a train of speed 5 km/hr.
(a) We should run in same direction with same speed.
(b) We should gradually retard for stopping.
(c) Jumping in vertical direction will be helpful.
(1) a, b & c (2) a & c (3) b & c (4) a & b
3. The largest planet in group of terrestrial planet is
(1) Earth (2) Venus (3) Mars (4) Mercury
4. Look at the figure showing an experimental setup.



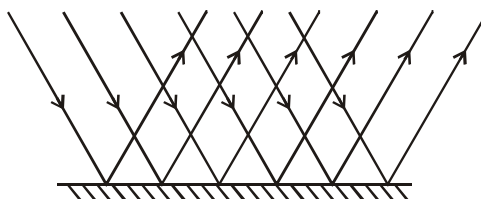
At the start of the experiment, the spring device is compressed to setting number 1 and released to propel the trolley P forward. When trolley P collides with trolley Q, both trolley move together for certain distance. Identify the physical quantities that vary for both trolleys before and after the collision.

- (1) Mass, velocity (2) Mass, momentum
(3) Mass, kinetic energy (4) Velocity, momentum
5. A spaceship explodes in the space. We do not hear the sound from the explosion because:
(1) Sound may be too weak
(2) Spaceship may be too far
(3) Sound requires medium to travel but there is no medium in space
(4) Sound travels very slow in vacuum

6. Mass and weight of an object on the surface of the earth is 5 kg and 50 N respectively ($g = 10 \text{ m/s}^2$ on the surface). If this object is taken at the centre of the earth then mass & weight of this object becomes:
- (1) 5 kg & 50 N respectively
 - (2) 5 kg & zero N respectively
 - (3) Zero kg & 50 N respectively
 - (4) Zero kg & zero N respectively

7. A body is said to be in equilibrium
- (1) If odd number of forces are acting on it.
 - (2) If even number of forces are acting on it.
 - (3) If its speed is constant
 - (4) If its acceleration is zero

8. Which phenomenon is described in the following figure?



- (1) Diffused Reflection
 - (2) Regular Reflection
 - (3) Irregular Reflection
 - (4) Zigzag Reflection
9. A particle starts from rest and moves with uniform acceleration. Then the ratio of distance covered in n th sec. to that in n sec. is
- (1) $\frac{n^2}{2n+1}$
 - (2) $\frac{2n-1}{n^2}$
 - (3) $\frac{n^2}{2n-1}$
 - (4) $\frac{2n+1}{n^2}$

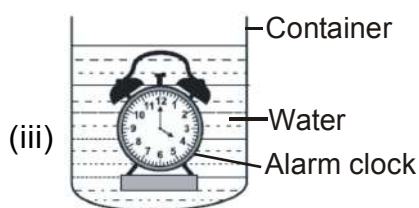
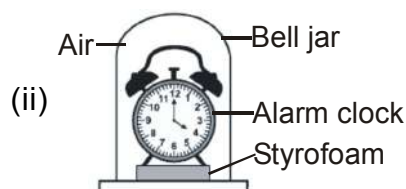
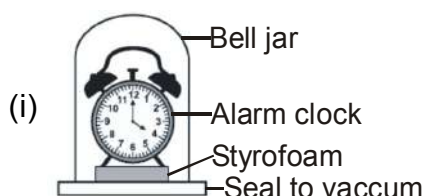
10. According to the chart, on which planet would a ball fall the slowest?

Planet	Earth	Jupiter	Neptune	Saturn
Acceleration due to gravity (in m/s^2)	10	26	14	12

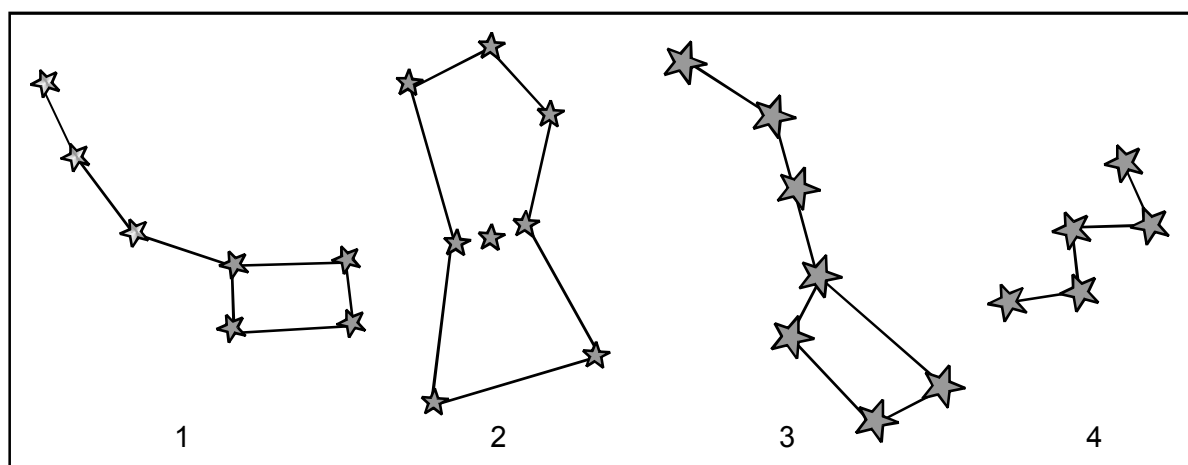
- (1) Jupiter
- (2) Saturn
- (3) Neptune
- (4) Earth

INTEGER

11. In how many of the following set up, the sound of alarm will be heard by those standing nearby it?



12. A body starts from point A and after covering a distance of 20 m it comes back to the point A. The average velocity of the object (in m/s) is
13. A cricket ball of mass 0.1 kg is moving horizontally with a speed of 30 m/s. It strikes a vertical wall and rebounds with a speed of 20 m/s in the opposite direction. The change in momentum of the ball is _____ kgm/s.
14. You can easily identify some constellations in the night sky. For this you should know how a particular constellation looks like. One of the most famous constellations which you can see during winter is Orion. Identify Orion from the picture given.





15. From a leak tap, water droplets are constantly falling. It is 11.25 m high. When 1st drop reaches to ground, 4th drop comes out. If the distance between 2nd and 3rd drop at this instant is x meter then calculate the value 100x.
($g = 10 \text{ m/s}^2$)
16. A car having speed of 6 m/s retards at constant rate of 2 m/s^2 . calculate the distance travelled (in m) in 1 second.
17. How many of the following are the constellations that can be seen in the night sky?
Orion, Ursa Major, Sirius, Ursa Minor, Phobos, Cassiopeia, Polestar
18. An object is thrown downward from an unknown height above the ground with an initial speed of 10 m s^{-1} . It strikes the ground 3.0 s later. What is the initial height (in m) of the object above ground.
19. How many of the following statements are correct?
(i) Mechanical waves need medium for there propagation
(ii) Sound can't travel through vacuum.
(iii) Mechanical waves transport energy from one place to another.
(iv) Sound waves are non-mechanical waves.
20. A car of mass 1000 kg is moving uniformly at 10 ms^{-1} . If the engine of the car develops an extra linear momentum of 1000 kg ms^{-1} , calculate the new velocity (in m/s) with which the car runs?

SECTION - B : CHEMISTRY

OBJECTIVE

21. Which fractional product of petroleum is used as aviation fuel
(1) Naphtha (2) Kerosene (3) Gasoline (4) Diesel
22. Which of the following is not a mixture:
(1) Soil (2) Air (3) Steam (4) Milk

23. Read the given statements and select the correct option

Statement-1 : Non-metals cannot be drawn into thin wire due to absence of malleability.

Statement-2 : Non-metals are brittle in nature.

- (1) Both statements 1 and 2 are true and statement-2 is the correct explanation of statement-1.
- (2) Both statements 1 and 2 are true but statement-2 is not the correct explanation of statement-1.
- (3) Both statements 1 and 2 are false.
- (4) Statement-1 is false and statement-2 is true.

24. CO_2 is a good fire extinguisher because

- (1) It is lighter than O_2
- (2) It does not support in combustion
- (3) It is lighter than H_2O
- (4) It is also combustible

25. When the blood sample is spin rapidly, the particles are Separated by the technique is -

- (1) Centrifugation
- (2) Fractional distillation
- (3) Evaporation
- (4) Tunneling

26. The most inferior quality of coal is:

- (1) Lignite
- (2) Peat
- (3) Bituminous
- (4) Anthracite

27. All the noble gases are:

- (1) Metals
- (2) Non-metals
- (3) metalloids
- (4) Some are metals and some are non- metals

28. Which of the following metals do reacts with water or dilute acids.

- (1) Cu, Ag
- (2) Pt, Au
- (3) Hg, Ag
- (4) Zn, Mg

29. Which of the following gas is produced after the complete combustion of substance $\text{C}_x\text{H}_y\text{O}_z$?

- (1) CO_2
- (2) N_2
- (3) O_2
- (4) CO

30. The conversion of silver articles gel black is called

- (1) corrosion and it is a physical
- (2) dissolution and it is a physical change.
- (3) corrosion and it is a chemical change.
- (4) dissolution and it is a chemical change.

INTEGER

31. How many byproducts are obtained directly-indirectly by destructive distillation of coal from the following :-

Ammonia, Nitrogen dioxide, coke, Naphthalene, carbon monoxide, Methane, Sodium bicarbonate, carbon tetrachloride, Hydrogen, Carbon disulphide

32. Among the metals how many is/are more reactive than Iron?

Zn, Ag, Au, H, Na, Mg, Al, Cu, Pt

33. For the process of respiration, we required O_x . What is the value of x here:

34. Ranchi prepared a salt solution with concentration 11.11% (mass by mass percentage) in 320 g of water. Abhinav prepared a salt solution by dissolving the same amount of salt (as used by Ranchi), but in 160 g of water. What is the approximate concentration (in mass by mass percentage) of the solution prepared by Abhinav?

35. How many of the following are not obtained by fractional distillation of crude oil?

Coke, Bitumen, Coal gas, Petroleum gas, Diesel, Kerosene, Paraffin wax, Lubricating oil, Petrol

36. Determine the number of combustible substance from the following :

Methane, propane, Alcohol, Glass, Iron, Magnesium, Carbon monoxide, carbon dioxide.

37. The percentage of carbon available in coal decides the quality of coal. The coal with the highest carbon content is finest quality of coal. Bituminous is the second best type of coal which is used for mainly house hold purpose. The percentage of carbon in bituminous is:

38. Out of the following

Iron, Gold, Silver, Iodine , Diamond, Hydrogen, Chlorine, Aluminium, Oxygen, Neon, Argon
The elements which are Lustrous in nature are

39. The total number of liquid non-metals at room temperature is/are

40. How many processes from the following are the examples of combustions :

(i) Rusting of iron (ii) Respiration (iii) Digestion

(iv) Conversion of solid Iodine into vapour on heating.

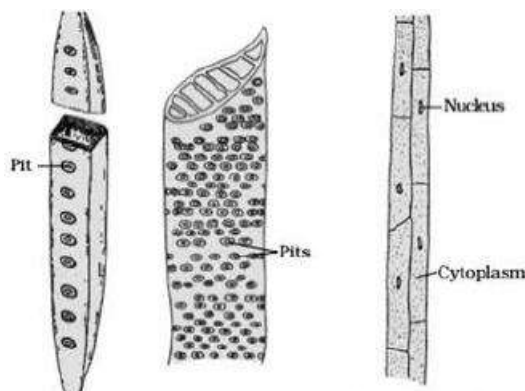
(v) Photosynthesis

(vi) Explosion of hydrogen in air.

SECTION-C : BIOLOGY

OBJECTIVE

- 41.** During binary fission in Amoeba which of the following structure is duplicated
- | | |
|-------------------------|------------------|
| (1) Plasma membrane | (2) Nucleus |
| (3) Contractile vacuole | (4) Food vacuole |
- 42.** Find the wrongly matched pair.
- (1) Endemic fauna -bison
 - (2) Endangered animals-Tiger
 - (3) Endemic flora- sal and wild mango
 - (4) Red Data Book- all animals
- 43.** Identify the no. of correct statements from the given statements:
1. Microorganism that grow on our food sometimes produce toxic substances.
 2. The bacteria is used in making cheese, pickles and other food items.
 3. Yeast reproduces rapidly and produces carbon monoxide during respiration.
 4. Streptomycin, Tetracycline and Erythromycin are some of the commonly known antibiotics.
 5. Alexander Fleming discovered vaccine for small pox.
 6. Measles is a bacterial disease which spreads through air,
 7. The process of conversion of sugar into alcohol is known as fermentation.
- | | | | |
|-------|-------|-------|-------|
| (1) 6 | (2) 3 | (3) 4 | (4) 7 |
|-------|-------|-------|-------|
- 44.** Identify the type of tissue:



- | | | | |
|------------|-----------|---------------|----------|
| (1) Phloem | (2) Xylem | (3) Epidermis | (4) Cork |
|------------|-----------|---------------|----------|



45. DNA is present as an important component in all of the following organelles/structures, except

- | | |
|------------------|---------------|
| (1) Chloroplast | (2) Lysosomes |
| (3) Mitochondria | (4) Nucleus |

46. Anita prefers to eat only healthy food, she avoids junk food. She used to keep her environment clean. But she is unable to do any physical exercise as her office work keeps her busy and stressed. She feels anxiety, uneasiness, anger and weepiness due to her office work.

She discussed her problem with her doctor, after checkup doctor consoled her that she has no pathological disease

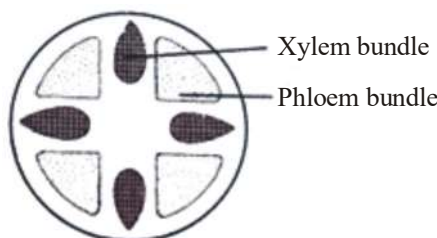
Then, which of the following option correctly defines the condition of Anita?

- (1) She is not healthy but disease free
- (2) Her liver is not working well
- (3) She is neither healthy nor disease free
- (4) She is suffering from a bacterial disease

47. Which one single or the pair of organisms is correctly assigned to its taxonomic group?

- (1) Paramecium and Plasmodium belong to the same kingdom as that of penicillium
- (2) Lichen is a composite organism formed from the symbiotic association of an alga and a protozoan
- (3) Yeast used in making bread and beer is the fungus
- (4) Nostoc and Anabaena are included in kingdom protista

48. Identify the type of vascular bundle as shown in the figure and select the incorrect statement regarding this



- (1) It represents radial vascular bundles in which xylem and phloem occur in the form of separate bundles
- (2) Xylem and phloem bundles occur in different radii
- (3) Such arrangement of xylem and phloem occurs in both monocot and dicot.
- (4) None of these

49. Organization responsible for maintaining Red Data Book is
 (1) IUCN (2) WWF (3) CITES (4) IBWL
50. Plasma membrane is majorly made up of :-
 (1) Carbohydrates only (2) Carbohydrate & protein only
 (3) Protein & lipid (4) Protein only

INTEGER

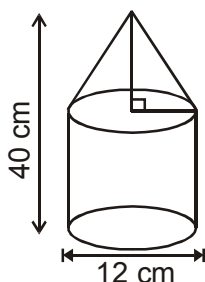
51. Which statements are true about Trypanosoma?
 (i) Trypanosoma is protozoan organism.
 (ii) It causes elephantiasis
 (iii) Trypanosoma is disease causing organism
 (iv) It help us for the absorption of vit B12.
52. Which one of the following statements are true about a biosphere reserve?
 (i) Biosphere reserves are the areas meant for conservation of biodiversity.
 (ii) Biodiversity is the variety of plants, animals and microorganisms generally found in an area.
 (iii) The biosphere reserves help to destroy the biodiversity and culture of that area.
 (iv) A biosphere reserve not contain other protected areas in it.
53. How many of them are incorrect regarding common cold
 (i) Common cold usually last for 3-7 days
 (ii) Characterized by nasal congestion and discharge
 (iii) It infects nose and respiratory passage including lungs
 (iv) Droplet infection
 (v) It is a bacterial infection
54. How many statements out of the following are not incorrect for a prokaryotic cell ?
 (i) Membrane bound cell organelles are absent.
 (ii) It has presence of nuclear membrane
 (iii) The undefined nuclear region contains only nucleic acids.
 (iv) It has single chromosome.
 (v) The chlorophyll in photosynthetic prokaryotes is found in plastids.
 (vi) They are usually large in size.
55. How many of the listed organisms are viviparous.
 Lizard, Dog, Butterfly, Cat, Cow hen, Human, Rabbit, Frog, Snake, Rat, Deer, Crocodile and Sparrow.

- 56.** Out of the given tissues how many are the types of connective tissue?
Bone, Cartilage, Aerolar tissue, skeletal muscles, Neurons, Blood
- 57.** Read the following statement carefully-
- (i) First living cell was seen by Robert Hooke.
 - (ii) First living cell was seen by Leeuwenhoek.
 - (iii) All cells can be easily seen with naked eye.
 - (iv) Longest cell is the egg of ostrich.
 - (v) Cell is the functional unit of body.
 - (vi) Few living cells lack plasma membrane
 - (vii) Some living cells lack cell wall.
- How many of the above statements are correct?
- 58.** Given below are some characteristics of microorganism. How many of the statements represent characteristics of bacteria?
- (i) Have heterotrophic mode of nutrition only.
 - (ii) Prokaryotic and unicellular in nature.
 - (iii) Uses pili for locomotion.
 - (iv) They are classified into 4 types on the basis of their shape.
 - (v) They have cell envelope known as capsid.
 - (vi) Discovered by A.V. Leeuwenhoek.
 - (vii) Can survive only in favourable optimum temperature.
- 59.** Following given is the jumbled list of animals. Sort them and categorize them on the basis of extinct, endangered and vulnerable animals.
Among these animals, how many are endangered?
Hippopotamus, Black Rhinoceros, White Rhinoceros, Orangutan, Dodo bird, Polar bear, Passenger pigeon, Snow leopard, Asian elephant, Giant panda, blue whale, Tasmanian tiger, Woolly mammoth, Chimpanzee, Galapagos penguin.
- 60.** Read the following statements about connective tissue and choose how many of them are correct among them ?
- (i) Connective tissue are most abundant and widely distributed in the body of complex animals
 - (ii) They include diverse tissues such as bone, cartilage, tendons, adipose tissue
 - (iii) In all connective tissues except blood, the cells secrete fibers of structural proteins called collagen or elastin
 - (iv) They connect and support other tissues
 - (v) They form the internal and external lining of many organs
 - (vi) Bone is the hardest connective tissue

SECTION-D : MATHEMATICS

OBJECTIVE

61. If the square root of a number is between 6 to 7, then the cube root of the number will be between
 (1) 1 & 2 (2) 2 & 3 (3) 3 & 4 (4) 4 & 5
62. Every point on the number line represents
 (1) A natural no. (2) A real number (3) A rational no. (4) An irrational number
63. Which of the following expressions represents the number one million in scientific notation?
 (1) 1000000 (2) 1.0×10^6 (3) 10×10^5 (4) 100×10^4
64. Factorise :
 $8 - 4l - 4m - 2lm - 4n + 2ln + 2mn - lmn$
 (1) $(2 - l)(2 + m)(2 + n)$ (2) $(2 - l)(2 - m)(2 - n)$
 (3) $(2 + m)(2 + n)(2 + l)$ (4) $(2 - l)(4 - m)(1 - n)$
65. The value of $(2020)^2 - (2019)^2$ is
 (1) 4040 (2) 4038 (3) 4000 (4) 4039
66. The container pictured below is made up of a cone and a cylinder. The cone and the cylinder have the same height.



Which of the following is closest to the volume of the container?

- (1) 2261 cm^2 (2) 3016 cm^2 (3) 3393 cm^2 (4) 4524 cm^2
67. If $(x + 1)$ and $(x - 2)$ are factors of $x^3 + ax^2 - bx - 6$, then find the values of a and b respectively.
 (1) 2, 3 (2) 3, 5 (3) 5, 3 (4) 2, 5

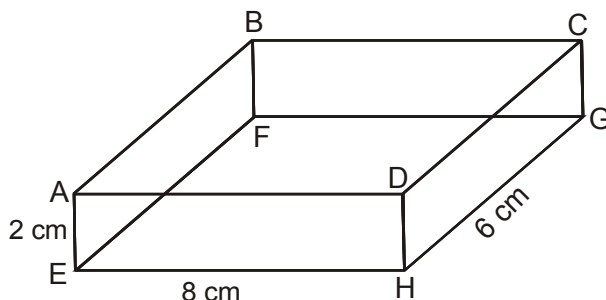


68. ABCD is a rhombus whose diagonals intersect at O. If $\angle ADC = 120^\circ$ and $OD = 6$ cm. Then perimeter of rhombus is
 (1) 24 cm (2) 40 cm (3) 32 cm (4) 48 cm
69. The sum of three distinct numbers is 10. If a number is $\frac{3}{2}$ more than the smallest number and $\frac{5}{2}$ less than the largest number, then the largest number is:
 (1) $\frac{11}{2}$ (2) $\frac{3}{2}$ (3) $\frac{7}{2}$ (4) 4
70. 15% of 400 students are not good in mathematics. How many are good in mathematics?
 (1) 85 (2) 60 (3) 185 (4) 340
71. Simplify: $(3x - 8y)(3x + 8y + 6) - 9x + 24y$
 (1) $9x^2 - 9x - 64y^2 - 24y$ (2) $9x^2 + 9x + 64y^2 - 24y$
 (3) $9x^2 - 9x - 64y^2 + 24y$ (4) $9x^2 + 9x - 64y^2 - 24y$
72. Evaluate $\frac{15}{\sqrt{10} + \sqrt{20} + \sqrt{40} - \sqrt{5} - \sqrt{80}}$, if $\sqrt{5} \cong 2.236$, and $\sqrt{10} \cong 3.162$
 (1) 3.598 (2) 5.398 (3) 4.398 (4) 5.938
73. The one's digit of the cube of 43 is
 (1) 9 (2) 7 (3) 3 (4) 1
74. What is the value of $6.\overline{6} - 9.\overline{9}$?
 (1) $3.\overline{3}$ (2) $0.\overline{3}$ (3) $-3.\overline{3}$ (4) 3.33
75. Multiplicative inverse of 3^{-4} is
 (1) 3^{-4} (2) 2^2 (3) 1 (4) 3^{+4}
76. If $\frac{x^2}{y^2} + \frac{y^2}{x^2} = 6$, ($x, y \neq 0$), then the value of $(x - y)(x + y) + 2xy = m$ and the value of $(x - y)(x + y) - 2xy = n$. Find the value of mn .
 (1) 4 (2) 36 (3) 0 (4) 8

77. What is the value of $\frac{1010^2 + 2020^2 + 3030^2}{2020}$

- (1) 2020 (2) 3030 (3) 7070 (4) 6060

78. The rectangle box has dimensions as shown what is the length \overline{AG} ?



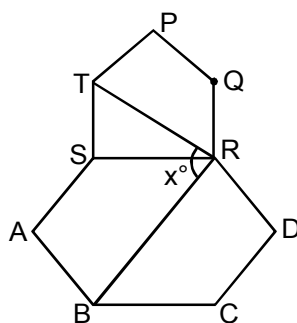
- (1) $2\sqrt{26}$ cm (2) $4\sqrt{6}$ cm (3) $2\sqrt{3}$ cm (4) $\sqrt{16}$ cm

79. If $a + b = 19$ and $ab = 88$, $a > 0$ and $b > 0$, $a > b$ then

Column-I		Column-II	
(i)	$a^3 - b^3$	(p)	57
(ii)	$a^2 + b^2$	(q)	819
(iii)	$a^2 - b^2$	(r)	185

- (1) (i) \rightarrow r, (ii) \rightarrow p, (iii) \rightarrow q (2) (i) \rightarrow q, (ii) \rightarrow r, (iii) \rightarrow p
 (3) (i) \rightarrow r, (ii) \rightarrow q, (iii) \rightarrow p (4) (i) \rightarrow q, (ii) \rightarrow p, (iii) \rightarrow r

80. Polygon PQRST is a regular pentagon and polygon ABCDRS is a regular hexagon. Find x.



- (1) 108 (2) 132 (3) 124 (4) 96

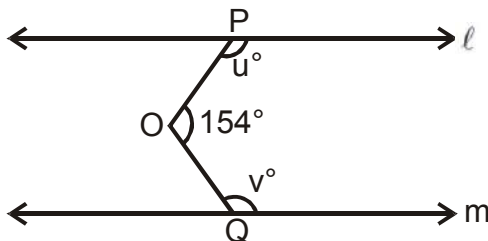
81. The art competition organisers decided that a winner in the competen gets a prize of Rs. 100 and a participant who does not win gets a prize of Rs. 25. The total prize money distributed is Rs. 3000. Find the number of winners, if the total number of participants is 63.

- (1) 17 (2) 19 (3) 21 (4) 24

82. The list price of a frock is Rs. 800. A discount of 35% is announced on sales. What is the amount of discount on it & its sales price respectively?

- (1) Rs. 250, Rs. 550 (2) Rs. 200, Rs. 600
(3) Rs. 280, Rs. 520 (4) None of these

83. In the figure, $\ell \parallel m$, $\angle POQ = 154^\circ$, then the value of $\left(\frac{u+v}{2}\right)$ is:



- (1) 77 (2) 154 (3) 103 (4) 206

84. P takes the same time to complete a revolution round a circular field as Q takes to complete a revolution round a square field. If P and Q move with same speed, then the ratio of the area of circular field to the area of square field is:

- (1) $\frac{\pi}{8}$ (2) $\frac{3\pi}{8}$ (3) $\frac{3}{2\pi}$ (4) $\frac{4}{\pi}$

85. A car covers 432 km in 36 litres of petrol. How much distance it would cover in 25 litres of petrol

- (1) 300 km (2) 250 km (3) 200 km (4) None

INTEGER

86. If $\sqrt[3]{\frac{-512}{343}} = \frac{a}{b}$ when a & b are coprime no, then find the value of $a \times b =$ _____.

87. The value of 'p' satisfying $18^{4p-3} = (54\sqrt{2})^{3p-4}$ is

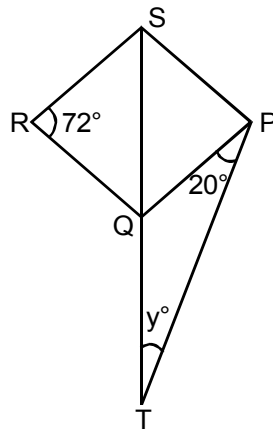
88. If $\left[\left\{\left(-\frac{2}{3}\right)^3\right\}^k\right]^2 = \frac{729}{64}$, then the value of $(2k + 3)$ is.

89. If $x + a$ is a factor of $x^4 - a^2 x^2 + 3x - 6a$. Find the value of a .
90. There are 603778 children in a school. For a drill they have to stand in such a manner that the number of rows is equal to number of columns. How many children would be left out in this arrangement.
91. A 25 cm wide path is to be made around a circular garden having a diameter of 4m. Find the approximate area of the path in square meters.
92. If $P(x) = x^3 - x^2 + x - 4$ is divided by $(x - 2)$, what is remainder
93. Among the following how many of them are concave polygons

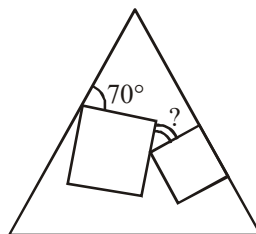


94. A steamer goes downstream from point A to B in 9 hrs. From B to A, upstream, it takes 10 hrs. If the speed of the stream is 1 km/hr, find the distance between points A and B in km.
95. Suman bought a refrigerator and paid 10% less than the original price. She sold it with 30% profit on the price she had paid. What percentage of profit did Suman earn on the original price?
96. Evaluate : $\frac{(198 \times 198 - 102 \times 102)^2}{4800 \times 2400} = \underline{\hspace{2cm}}$
97. If the square root of $5 + 2\sqrt{6}$ is $\sqrt{x} + \sqrt{y}$. then find the value of xy is
98. A wire in the form of a circle of radius 3.5 cm is bent in the form of a rectangle, whose length and breadth are in the ratio of 6 : 5. What is the area of rectangle (in cm^2).
99. Find the value of $(2020)^3 - (1001)^3 - (1019)^3 - 3 \times 2020 \times 1001 \times 1019$

- 100.** In the given figure, PQRS is a rhombus with $\angle SRQ = 72^\circ$ and SQ extended till T such that $\angle QPT = 20^\circ$. Find y



- 101.** A hare and a tortoise competed in a 5 km race along a straight line. The hare is five times faster than the tortoise. The hare mistakenly started perpendicular to the route. After a while he realized his mistake, then turned and ran straight to the finish point. He arrived at the same time as the tortoise. What is the distance (in km) between the hare's turning point and the finish point?
- 102.** The cost of a pair of wooden skates at a shop was Rs. 300. The sales tax charged 4%. Find the bill amount in Rupees?
- 103.** Two squares of different size are drawn inside an equilateral triangle. One side of one of these squares lies on one of the sides of the triangle as shown. What is the size of the angle marked by the question mark (in degrees)?



- 104.** An elephant of length 4m is at one corner of a rectangular cage $16\text{m} \times 30\text{m}$ and facing towards the diagonally opposite corner. If the elephant starts moving towards the diagonally opposite corner it takes 15 seconds to reach the opposite corner. Find the speed of the elephant (in m/s).

105. Five engineers A, B, C, D and E can complete a process in 8 hrs, assuming that every engineer works with same efficiency. They started working at 10 : 00 am. If after 4 : 00 pm, one engineer is removed from the group every hour, what is the time when they will finish the work, at night.

106. ABCD is trapezium with $AB \parallel CD$ & $AD = BC$ and $\angle D = 102^\circ$, find $\angle B$.

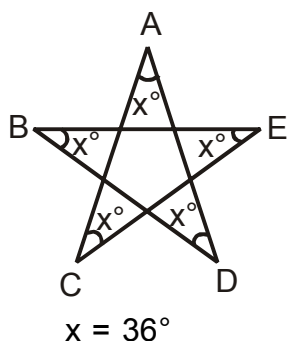
107. The difference between the numerator and denominator of a rational number which is less than unity is 1. If its numerator is increased by 4 and denominator is decreased by 3, it becomes 2. What is the sum of its numerator and denominator?

$$\text{Sum of numerator and denominator} = 8 + 9 = 17$$

108. $x\%$ of 320 is 96.

then $x =$

109. In the figure the value of $2x$ is:



110. A cuboid of dimensions $\ell \times b \times h$ has its surface area 376 sq. units and volume 480

cubic units. Then $120 \times \left(\frac{1}{\ell} + \frac{1}{b} + \frac{1}{h} \right) =$

SECTION-E : MENTAL ABILITY OBJECTIVE

111. X and Y is a married couple. A and B are the brothers. A is the brother of X. How B related to Y ?

- (1) Brother-in-law (2) Father-in-law (3) Son-in-law (4) Brother

112. Which is correct water image from the given four images ?

U4P157

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

113. In the following question, choose the correct mirror image from alternatives.

VINAYAKA

- (1) INVAYAKA (2) AXIAYANIV (3) AKAYANIV (4) AXIAYANIV

114. Praveen is facing North - East. He turn 90° degree in the clockwise direction and then 135° in the anticlockwise direction . In which direction is he facing Now?

- (1) North (2) South (3) East (4) West

115. What is the value of :

$$16 \times 12 - 6 \div 2 + 17 = ?$$

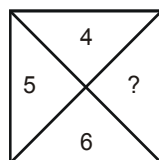
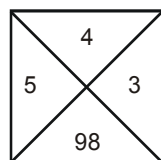
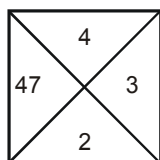
- (1) 172 (2) 192 (3) 206 (4) 209

116. Find the missing term in the given number series :

163, 167, 142, 147, 111, 117, ?, 75

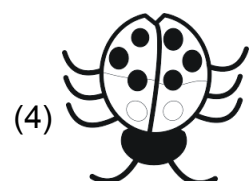
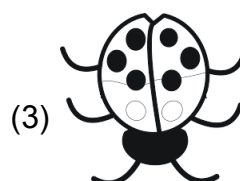
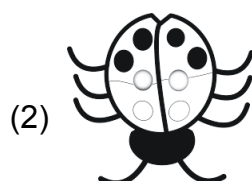
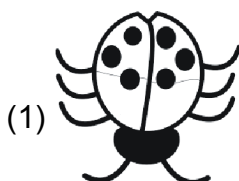
- (1) 96 (2) 68 (3) 78 (4) 92

117. Which number replaces the question mark?

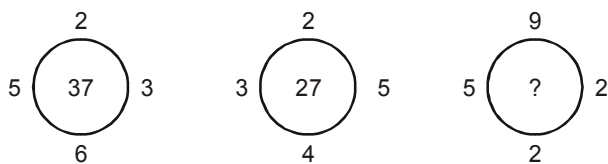


- (1) 125 (2) 141 (3) 177 (4) 156

118. Find the water image of the given figure.



119. Which number replaces the question mark?



(1) 27

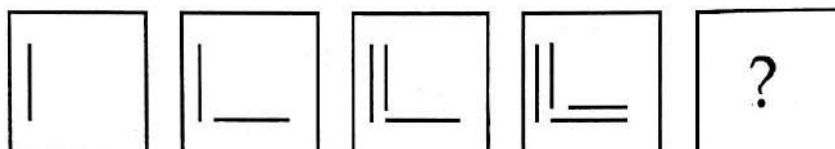
(2) 37

(3) 47

(4) 57

120. In the following question a set of figures related in some manner is given. Find the figure that comes in place of '?' and follows/continuous the same relationship.

Question figure:



Answer figure :



121. If $r * s = r^s$ and $r \# s = s^r$, then what is the value of $(2 * 3) * (1 \# 4)$

(1) 2048

(2) 4096

(3) 1024

(4) 8192

122. Find the missing term

4A, 12D, 28G, 60J, 124M, ?

(1) 246 S

(2) 256 T

(3) 248 Q

(4) 252 P

123. Dinesh said to the Namit, "That boy playing hockey is the younger of the two brothers of the daughter of my father's wife". How is the boy playing hockey related to Dinesh?

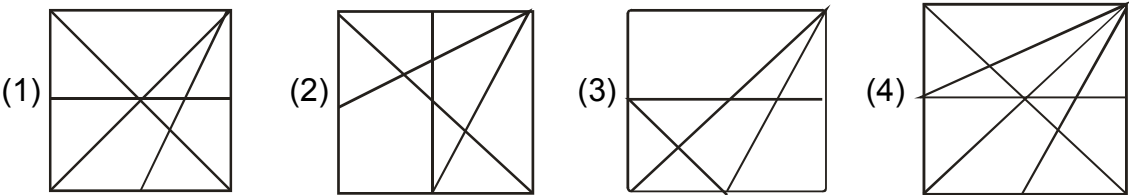
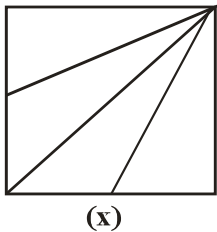
(1) Son

(2) Brother

(3) Cousin

(4) Niece

124. Direction : In the following question choose the alternative figure in which the question figure (x) is embedded.

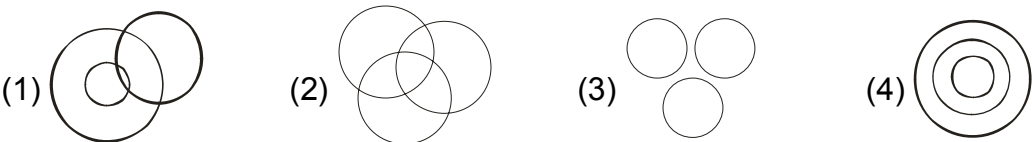


125. Find the missing term:

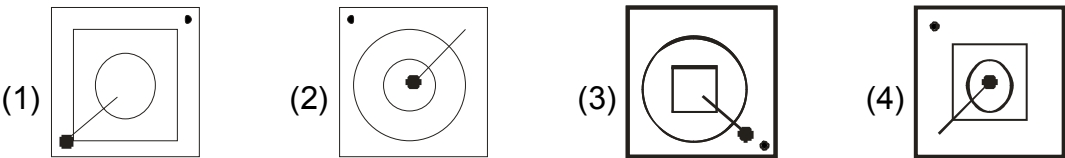
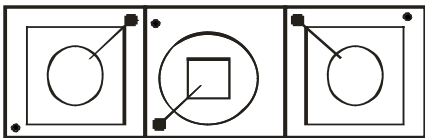
11, 6, 5, 9, 16, ?

- (1) 66.5 (2) 78.5 (3) 89.5 (4) 42.5

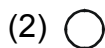
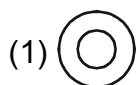
126. Which of the following diagrams indicates last reaction between mother, sisters and doctors ?



127. In the following question consist of problem figures. These problem figure forms a series. Find out one figure from answer figures that will continue the series.



128. Which of the following diagrams indicates the best relation between Mother, Parent and Women ?



129. What is the value of :
 $1001 \div 11$ of $13 \times 3 = ?$

(1) 21

(2) 3549

(3) $\frac{91}{39}$

(4) 91

130. In a Class Vidhya ranks 7th from the top, Divya is 7 ranks ahead of Medha and 3 ranks behind Vidhya Sushma who is 4th from the bottom, is 32 ranks behind Medha. How many students are there in the class ?

(1) 52

(2) 49

(3) 50

(4) 42

131. In a class of 25 students, Sheela got 19th Rank from the last and Vernika got 13th Rank from the first. How many students are between Vernika and Sheela ?

(1) 4

(2) 5

(3) 6

(4) 3

132. Complete the following series :
 ABDH, BDHP, CFLX, DHPF,

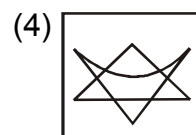
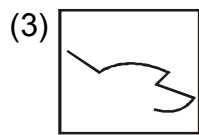
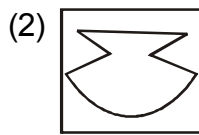
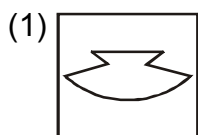
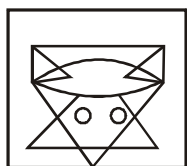
(1) EKNT

(2) TNEK

(3) EJTN

(4) JNTE

133. From the given figures select the one which is hidden embedded in the question figure.



134. One who is the wife of my daughter's brother is my

(1) Nephew

(2) Daughter-in-law

(3) Daughter

(4) Sister

135. 75075, 25025, 5005, 715,, 5

(1) 235

(2) 365

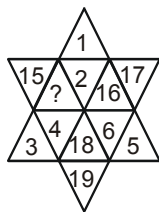
(3) 156

(4) 65

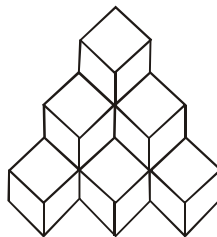


INTEGER

- 136.** If **MAN** is coded as **28**, what will be the code number for **CHILD** ?
- 137.** Manit started from his house towards North after walking straight for 100m, he moved to his right and walked 500m, he again moved to his right. After walking a distance of 100m, he moved to his left and walked 200m. How far away is he from the starting point?
- 138.** Which number replaces the question mark?



- 139.** Count the number of cubes in the given figure.



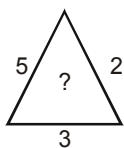
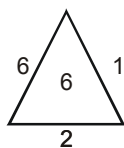
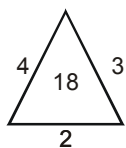
- 140. Direction :** A cube painted red on two adjacent faces and black on the faces opposite to the red faces and green on the remaining faces is cut into 64 smaller cubes of equal size. How many cubes have less than three faces painted?

- 141.** Find the number of triangles in the given figures.

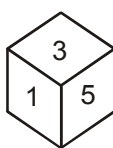
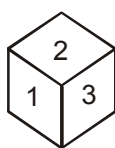


- 142.** A walks 10 metres towards East and then 10 metres to his right. Then every time turning to his left, he walks 5, 15 and 15 metres respectively. How far is he now from his starting point (in meters) ?

143. Which number replaces the question mark?



144. The figure given below show the three different position of a dice. Which number will appear opposite to number 4 ?



145. If $5@2\#3 = 335$

$$7@8\#1 = 203$$

$$2@9\#5 = 608$$

$$\text{Then } 3@2\#7 = ?$$

146. Find the missing term in the given number series :

606, 201, 66, ?, 6, 1

147. How many 5's are there in the following sequence which are immediately followed by 3 but not immediately preceded by 7 ?

8 9 5 3 2 5 3 8 5 5 6 8 7 3 3 5 7 7 5 3 6 5 3 3 5 7 3 8

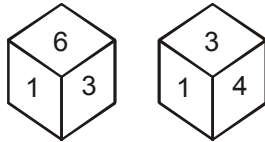
148. A walked 30 m in north. Then turn to right and walk 40 m. Then turn 135° degree clock wise direction and walk 50 m. How far from the starting point

149. How many L's are there which do not have R preceding them and also do not have T following them ?

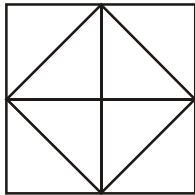
Z Q S T L R M N Q N R T U V X R L T A S L T Q R S L T

150. 10, 100, 200, 310, ?

151. The figure given below show the two different position of a dice. Which number will appear opposite to number 6 ?



152. Count the number of triangles in the following figure.



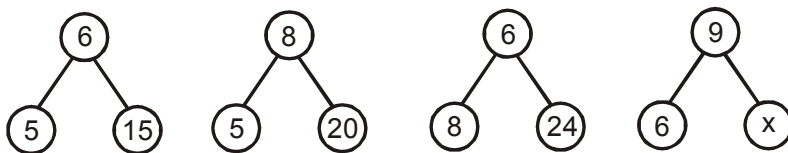
153. If in certain code K = 11 and STUDENT = 103, Then CLASS =

154. If ACE = 15, ARC = 54, Then ALL =

155. Complete the following series :

6, 24, 60, 120, 210,

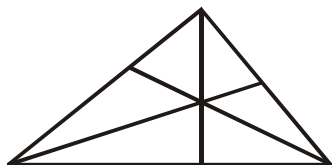
156. Study the pattern and given the answer of x.



157. Manit is facing North, then he turned 135° clockwise, and then again turned 90° anti-clockwise and again turned 180° clock-wise and then the turned x° anti-clockwise to face towards East. Find the value of x.

- 158.** Direction : A cube is painted blue on three adjacent sides and then cut into 8 small cubes. Each blank face is then painted yellow. Then each such cube is again cut into 8 cubes total no. of cubes after second direction = $8 \times 8 = 64$. How many cubes have three blue faces each?

- 159.** The number of possible triangles in the given figure is _____?



- 160.** If in a certain code language, $14 \times 13 = 20$, $22 \times 25 = 28$ then $15 \times 27 =$ _____?

ANSWER KEY

1	2	3	4	5	6	7	8	9	10
1	4	1	4	3	2	4	2	2	4
11	12	13	14	15	16	17	18	19	20
3	0	5	2	375	5	4	75	3	11
21	22	23	24	25	26	27	28	29	30
2	3	4	2	1	2	2	4	1	3
31	32	33	34	35	36	37	38	39	40
6	4	2	20	2	5	80	6	1	3
41	42	43	44	45	46	47	48	49	50
2	4	2	2	2	1	3	3	1	3
51	52	53	54	55	56	57	58	59	60
2	2	2	3	7	4	3	3	6	5
61	62	63	64	65	66	67	68	69	70
3	2	2	2	4	2	4	4	1	4
71	72	73	74	75	76	77	78	79	80
4	2	2	3	4	3	3	1	2	4
81	82	83	84	85	86	87	88	89	90
2	3	3	4	1	-56	6	1	0	49
91	92	93	94	95	96	97	98	99	100
3.34	2	3	180	17	72	6	30	0	34
101	102	103	104	105	106	107	108	109	110
13	312	50	2	8	78	17	30	72	47
111	112	113	114	115	116	117	118	119	120
1	3	2	1	3	2	3	4	4	4
121	122	123	124	125	126	127	128	129	130
2	4	2	4	4	2	3	3	1	1
131	132	133	134	135	136	137	138	139	140
2	3	3	2	4	36	700	14	10	56
141	142	143	144	145	146	147	148	149	150
12	5	24	1	735	21	3	0	1	430
151	152	153	154	155	156	157	158	159	160
4	12	54	144	336	27	135	1	16	54