



Parishram



AIMPIAD 2023



REWARD TEST

Class 9th to 10th moving

**Previous Year Question Paper
AIMPIAD - 2022**



A Unit of VSA Education Pvt. Ltd.

AIMPIAD-2022

PREVIOUS YEAR QUESTION PAPER

COURSE : NURTURE

FOR CLASS IX TO X MOVING STUDENTS

Date : XX-XX-XXXX

Time : 1 Hours 30 Mins

Max. Marks : 360

GENERAL INSTRUCTIONS :

1. The Test Booklet (Physics, Chemistry, Biology, Mathematics, IQ) consists of 90 questions.
 - All questions are compulsory.
 - Marking Scheme : Four (4) mark for each correct response. Minus One (-1) mark will be awarded for incorrect response and zero mark if no bubble is darkened.
 - Question paper is divided into five sections –
 - Section I :- Physics (Question No. 1 to 15 with Max. Marks - 60)
 - Section II :- Chemistry (Question No. 16 to 30 with Max. Marks - 60)
 - Section III :- Biology (Question No. 31 to 50 with Max. Marks - 80)
 - Section IV :- Mathematics (Question No. 51 to 70 with Max. Marks - 80)
 - Section V :- IQ (Question No. 71 to 90 with Max. Marks - 80)
2. Blank papers, clip boards, log tables, slide rule, calculators, mobile or any other electronic gadgets, in any form, is not allowed.
3. Write your Name and Roll No. in the space provided in the bottom of this booklet.
4. Before answering the paper, fill up the required details in the blank space provided in the answer sheet.
5. Do not forget to mention your roll number neatly and clearly in the blank space provided in the answer sheet.
7. No rough sheets will be provided by the invigilators. All the rough work is to be done in the blank space provided in the question paper.
8. In case of any dispute, the answer filled in the OMR sheet available with the institute shall be final.

DO NOT BREAK THE SEALS WITHOUT BEING INSTRUCTED TO DO SO BY THE INVIGILATOR

Name : _____

Roll No. _____

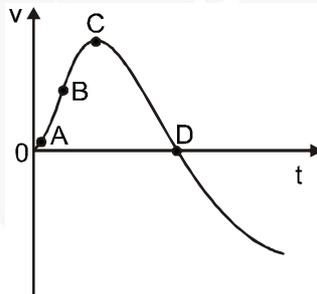
PARISHRAM, A unit of VSA Education Pvt. Ltd.

Address: Satpura Colony, Aghoria Bazar, Muzaffarpur, Bihar - 842002,
Mob. No.: +91-9771415601 / +91-9771415602 / +91-9771415603

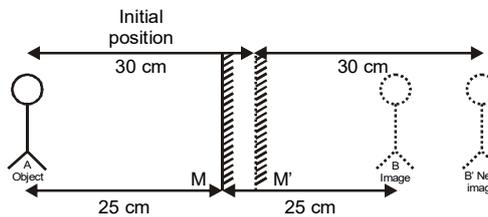
SECTION - 1
Straight Objective Type

This section contains 90 multiple choice questions. Each question has choices (A), (B), (C) and (D), out of which **ONLY ONE** is correct.

1. The graph shows how the velocity 'v' of a firework rocket changes with time t. At which point on the graph does the rocket have the greatest acceleration?



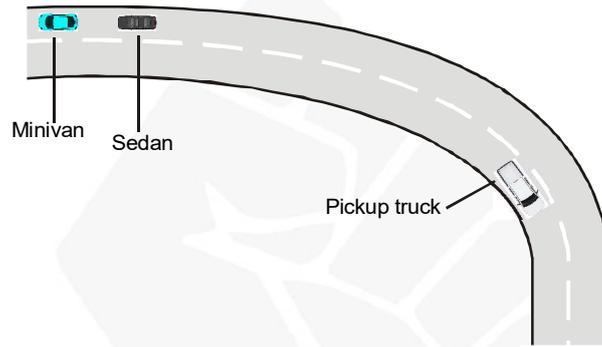
- (A) A (B) B (C) C (D) D
2. Which diagram correctly represents reflection of light along an optical fibre?
- (A) (B)
- (C) (D)
3. A bomb at rest explodes into two pieces of equal mass. Then the pieces will fly off
- (A) in the same direction with equal speeds (B) in the same direction with unequal speeds
(C) in opposite direction with equal speeds (D) in opposite directions with unequal speeds
4. An object is at a distance 25 cm in front of a plane mirror. The mirror is shifted 5 cm away from the object. Find the distance between the two positions of the image.



- (A) 5 cm (B) 10 cm (C) 15 cm (D) 20 cm

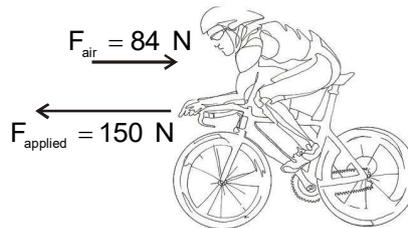
Rough Space

5. The three vehicles shown below are all traveling at a speed of 15 m/s but only the pickup truck has a changing velocity.



The pickup truck has a changing velocity because the pickup truck

- (A) can accelerate faster than the other two vehicles
 (B) is traveling in the opposite direction from the other two vehicles
 (C) is traveling on a curve in the road
 (D) needs a large amount of force to move
6. A ball of mass m strikes a wall with a speed x and retraces its path with the speed y . If the ball is in contact with the wall for time t , then the magnitude of average force exerted by the wall on the ball
- (A) $\frac{m(x-y)}{t}$ (B) $\frac{mt}{(x+y)}$ (C) $\left(\frac{x+y}{m}\right)$ (D) $\frac{m(x+y)}{t}$
7. The diagram below shows two different forces acting on a cyclist riding a bicycle. The total mass of the cyclist and the bicycle is 100.0 kg. $F = 150$ N applied $F = 84$ N air Based on this information, what is the acceleration of the cyclist?



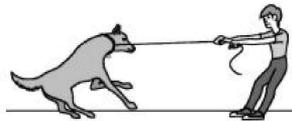
- (A) 0.66 m/s^2 backward, because the force of the air slows the cyclist down.
 (B) 0.66 m/s^2 forward, because the applied force is greater than the force of the air.
 (C) 2.3 m/s^2 backward, because the forces are opposite and not equal.
 (D) 2.3 m/s^2 forward, because the cyclist's inertia is greater than the force of the air.

Rough Space

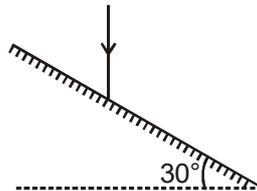
8. In the table below, which planetary system has the greatest gravitational force acting between the planet and its moon?

Mass and Distance Data for Planets and Their Moons			
Planetary system	Planet mass (in kg)	Moon mass (in kg)	Distance from planet (in km)
1	600×10^{22}	6×10^{22}	2×10^6
2	600×10^{22}	6×10^{22}	3×10^6
3	600×10^{22}	12×10^{22}	2×10^6
4	600×10^{22}	12×10^{22}	1×10^6

- (A) 1 (B) 2 (C) 3 (D) 4
9. Which of the following best describes the forces being used by the dog?



- (A) The dog is pulling on the ground and pulling on the rope.
 (B) The dog is pulling on the ground and pushing on the rope.
 (C) The dog is pushing off the ground and pulling on the rope.
 (D) The dog is pushing off the ground and pushing on the rope.
10. The force necessary to stop a hammer having a momentum of 25 N-s in 0.05 seconds is
 (A) 25 N (B) 50 N (C) 1.25 N (D) 500 N
11. A plane mirror makes an angle of 30° with horizontal. If a vertical ray of light strikes the mirror as shown in the figure, then the angle between mirror and the reflected ray is :



- (A) 30° (B) 45° (C) 60° (D) 90°

Rough Space

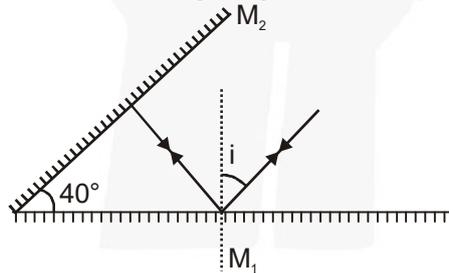
12. The figure shows a parachute jumper in four positions.



1. In the aircraft before the jump
2. In freefall immediately after jumping before parachute opens
3. Falling to the ground after the parachute opens
4. On the ground just after landing

In which of the positions does the force of gravity act on the jumper?

- (A) Position 2 only. (B) Positions 2 and 3 only.
 (C) Positions 1, 2 and 3 only. (D) Positions 1, 2, 3, and 4.
13. There are two plane mirror inclined at 40° , as shown. A ray of light is incident on mirror M_1 . What should be the value of angle of incidence 'i' so that the light ray retraces its path after striking the mirror M_2 ?



- (A) 20° (B) 30° (C) 40° (D) 50°
14. A body has a frequency of 20Hz. The number of oscillations completed by the body in 5s is.
 (A) 20 (B) 50 (C) 80 (D) 100
15. Look at the picture of a xylophone.

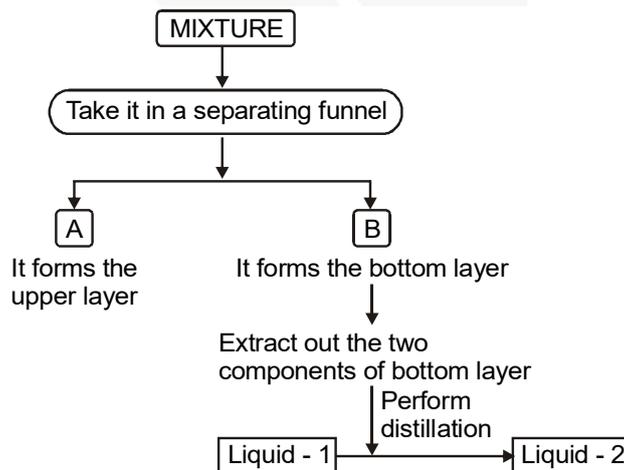


When struck, a short bar vibrates more quickly than a long bar. What is true about the long bar when it is struck?

- (A) It has the same pitch as the short bar. (B) It has a lower pitch than the short bar.
 (C) It has a higher pitch than the short bar. (D) Its pitch depends how hard you strike it.

Rough Space

16. The density of a solution is 1.84 gm/cc at 35°C and contains 98% H₂SO₄ by weight. What is the approx % concentration (w/v) of H₂SO₄ in solution ?
 (A) 1800% (B) 180% (C) 184% (D) 100%
17. Certain volume of gas exerts some pressure on walls of container at a constant temperature. It has been found that by reducing the volume of gas to half of its original value, the pressure becomes twice that of initial value at constant temperature. This is because
 (A) the weight of the gas increases with pressure
 (B) velocity of gas molecules decreases
 (C) more number of gas molecules strike the surface per second
 (D) gas molecules attract one another.
18. The liquid and its vapours at boiling point are at equilibrium. The molecules of the two phases have equal
 (A) potential energy (B) forces (C) total energy (D) kinetic energy
19. Identify A and B in the given flow-chart.



- (A) (A)-Kerosene and Water, (B)-Common salt (B) (A)-Oil and Water, (B)-Common salt
 (C) (A)-Oil, (B)-Alcohol and Water (D) (A)-Water, (B)-Common salt and Oil
20. Number of molecules in 500 ml of each H₂, O₂ and CO₂ at STP are in the order
 (A) H₂ < O₂ < CO₂ (B) H₂ > O₂ > CO₂ (C) H₂ = O₂ = CO₂ (D) H₂ > O₂ ≠ CO₂
21. For a reaction A + 2 B → C, the amount of C formed by starting the reaction with 5 moles of A and 8 moles of B is
 (A) 5 moles (B) 8 moles (C) 16 moles (D) 4 moles

Rough Space

22. X and Y are two elements which form X_2Y_3 and X_3Y_4 . If 0.20 mol of X_2Y_3 weighs 32.0 g and 0.4 mol of X_3Y_4 weighs 92.8 g, the atomic masses of X and Y are, respectively
(A) 16.0 u and 56.0 u. (B) 8.0 u and 28.0 u. (C) 56.0 u and 16.0 u. (D) 28.0 and 8.0 u
23. The ratio of number of electrons in N shell of A and M shell of B with atomic numbers 40 and 32 respectively is
(A) 5 : 3 (B) 9 : 5 (C) 5 : 9 (D) 5 : 4
24. In a sample of haemoglobin 0.33% iron is present. The molecular weight of haemoglobin is 67200 u. Calculate the approximate number of atoms of iron present in haemoglobin ? (Fe = 56 u)
(A) 6 (B) 1 (C) 4 (D) 2
25. How many total protons are found in one molecule of retinol ($C_{20}H_{30}O$) ?
(A) 51 (B) 151 (C) 600 (D) 158
26. Among the following groups which represents the collection of isoelectronic species ?
(A) NO^+ , C_2^{2-} , O_2^- , CO (B) N_2 , C_2^{2-} , CO, NO (C) CO, NO^+ , CN^- , C_2^{2-} (D) NO, CN^- , N_2 , O_2
27. Silica is a _____ .
(A) Monoatomic element (B) Diatomic compound
(C) Triatomic compound (D) Tetratomic compound
28. The ratio of oxygen atoms present in one molecule of cupric nitrite and ferric sulphite is
(A) 4 : 9 (B) 2 : 3 (C) 1 : 2 (D) 1 : 3
29. Naturally occurring boron consists of two isotopes whose atomic weights are 10.01 and 11.01. The atomic weight of natural boron is 10.81. What is the percentage of two isotopes respectively?
(A) 50%, 50% (B) 20%, 80% (C) 80%, 20% (D) 75%, 25%
30. The comparison of the particles P,Q,R,S and T is given in the table

Substance	No. of Protons	No. of Neutrons	No. of electrons
P	25	30	25
Q	13	13	13
R	13	14	13
S	9	10	9
T	9	10	10

Identify atoms, ions and isotopes.

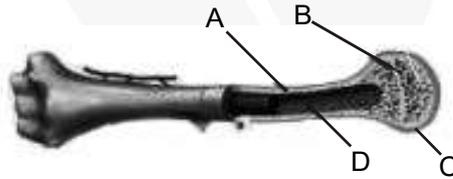
- | | Atoms | ions | Isotopes |
|-----|---------|-------|----------|
| (A) | P,Q,R | R,T | S and T |
| (B) | R,T | P,Q,S | Q and R |
| (C) | P,Q,R,S | T | Q and R |
| (D) | Q,R | P,T | S and T |

Rough Space

31. Identify the following organism and state to which phylum it belongs ?



- (A) Coelenterata (B) Porifera (C) Platyhelminthes (D) Annelida
32. Which of the following is causative agent of peptic ulcer ?
 (A) Helicobacter pylori (B) Leishmania (C) Trypanosoma (D) Roundworm
33. Which of the following muscle is responsible for movement of food in alimentary canal ?
 (A) Smooth Muscle (B) Striated Muscle (C) Voluntary Muscle (D) Cardiac Muscle
34. What type of tissue is located at the area labelled D in the diagram below ?



- (A) Compact bone (B) Spongy bone (C) Bone marrow (D) Cartilage
35. Match the column I with column II and select the correct answer from the codes given below.

Column I

- (a) Plague
 (b) Whooping cough
 (c) Measles
 (d) Elephantiasis

Column II

- (i) Rubeola virus
 (ii) Wuchereria bancrofti
 (iii) Salmonella typhi
 (iv) Yersinia pestis
 (v) Bordetella pertusis

- | | a | b | c | d |
|-----|----------|----------|----------|----------|
| (A) | (iv) | (v) | (i) | (ii) |
| (B) | (i) | (v) | (ii) | (iv) |
| (C) | (iv) | (v) | (ii) | (i) |
| (D) | (i) | (iii) | (v) | (ii) |

36. What happened when we inoculated Rhizobium in wheat field?
 (A) No increase in production (nitrogen content of soil remains same)
 (B) A lot of increase in production (nitrogen content of soil increases)
 (C) Fertility of soil decreases
 (D) Fertility of soil increases

Rough Space

37. Match column I with column II and select the correct option.

Column-I

- (a) Ploughing
(b) Manure
(c) Irrigation
(d) Weeding

Column-II

- (p) Cow Dung
(q) Hoe
(r) Khurpi
(s) Dhekli

- (A) a-(q), b-(p), c-(s), d-(r)
(C) a-(r), b-(p), c-(q), d-(s)

- (B) a-(s), b-(q), c-(r), d-(p)
(D) a-(r), b-(q), c-(p), d-(s)

38. Which of the following statements is false ?

- (A) Smooth muscles are found in urinary bladder, alimentary canal and urinogenital tract.
(B) Formation of skeletal muscle is an example of syncytium.
(C) The cytoplasm of striated muscles is called endoplasm.
(D) Skeletal muscle fibres contain proteins known as actin and myosin.

39. Selective breeding allows breeders to

- (A) increase the chance of desirable traits in offspring
(B) develop perfect offspring
(C) completely predict all traits in offspring
(D) eliminate every negative trait in every offspring

40. Match the column I with column II and select the correct option.

Column-I

- (a) Haversian canal
(b) Dendrites
(c) Sarcolemma
(d) Chondrocytes

Column-II

- (p) Kidney
(q) Cartilage
(r) Muscle
(s) Nerve cells
(t) Bone

- (A) a-q, b-r, c-s, d-t

- (B) a-p, b-r, c-s, d-t

- (C) a-t, b-s, c-r, d-q

- (D) a-s, b-t, c-q, d-r

41. Which of the following shows the genetic material stored in the cell in order of decreasing size?

- (A) DNA, gene, chromosome, nucleus
(B) Nucleus, chromosome, DNA, gene
(C) Chromosome, nucleus, gene, DNA
(D) Nucleus, DNA, chromosome, gene

42. Who is/are "Father of Green Revolution" ?



(A)

Norman Borlaug



(B)

Dr. V. Kurein

- (C) Norman Borlaug and Dr. V. Kurein both are the Father of Green Revolution.
(D) None of these

Rough Space

43. Which tissue is found in blubber of whale?

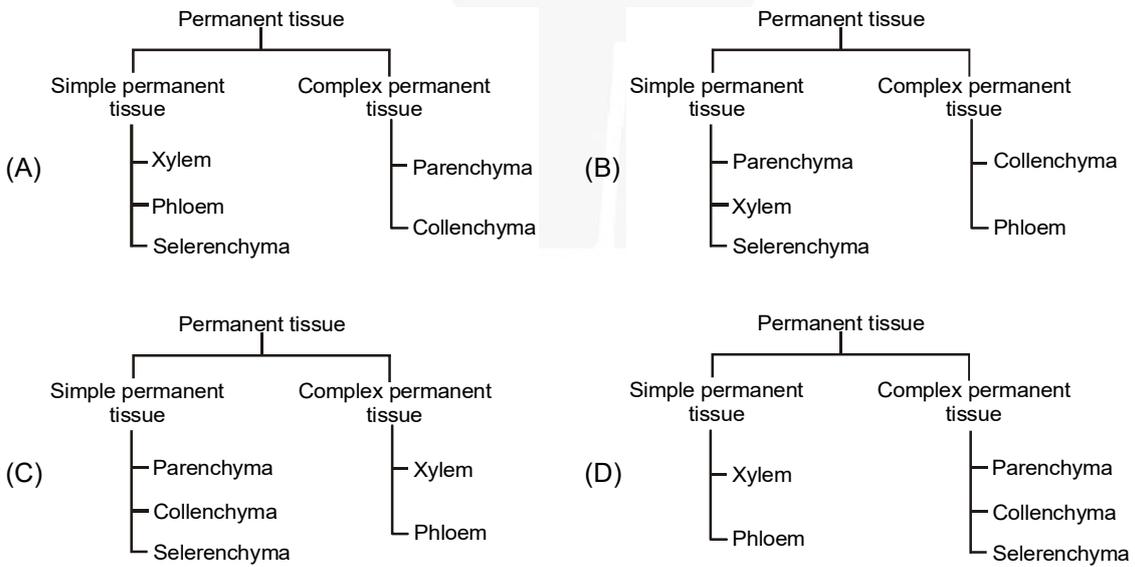


- (A) Squamous epithelial tissue (B) Nervous tissue
 (C) Skeletal tissue (D) Adipose tissue

44. Arrange the following in correct order.

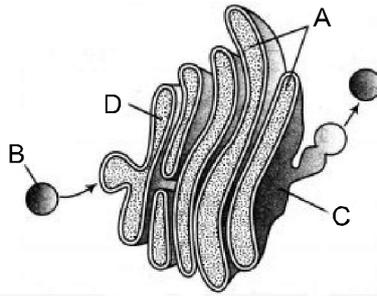
- a. Manuring b. Sowing c. Irrigation d. Harvesting
 (A) b → a → c → d (B) a → b → c → d (C) b → c → d → a (D) c → a → b → d

45. Which of the following flow chart is correct ?



Rough Space

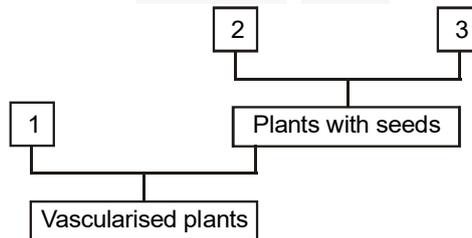
46. Look at the diagram given below and choose the option which correctly represents A, B, C & D.



- (A) A-Cisternae, B-Vesicle, C-Cis face, D-Trans face
- (B) A-Cisternae, B-Vesicle, C-Trans face, D-Cis face
- (C) A-Tubules, B-Vesicle, C-Trans face, D-Cis face
- (D) A-Vesicle, B-Cisternae, C-Cis face, D-Trans face

47. The type of tissue that forms the framework of the external ear is
 (A) Epithelial tissue (B) Connective tissue (C) Nervous tissue (D) Muscular tissue

48. Study the chart. What do the numbered boxes indicate?



- (A) 1 - Bryophytes, 2 - Pteridophytes, 3 - Gymnosperm
- (B) 1 - Pteridophytes, 2 - Bryophytes, 3 - Gymnosperm
- (C) 1 - Pteridophytes, 2 - Gymnosperm, 3 - Angiosperm
- (D) 1 - Gymnosperm, 2 - Angiosperm, 3 - Pteridophytes

49. Match Column - I with Column - II and select the correct option.

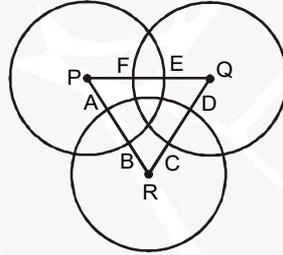
- | | | | |
|--------------|--------------------|--|--|
| (a) Plantae | 1. Archaeobacteria | | |
| (b) Fungi | 2. Euglenoids | | |
| (c) Protista | 3. Phycomycetes | | |
| (d) Monera | 4. Bryophyta | | |
- (A) a-4, b-3, c-2, d-1 (B) a-1, b-2, c-3, d-4 (C) a-3, b-4, c-2, d-1 (D) a-4, b-2, c-3, d-1

50. The term 'water-pollution' can be defined in several ways. Which of the following statements does not give the correct definition ?

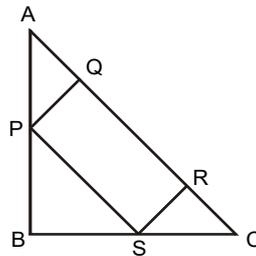
- (A) The addition of undesirable substances in water bodies.
- (B) The removal of desirable substances from water bodies.
- (C) A change in pressure of the water bodies.
- (D) A change in temperature of the water bodies.

Rough Space

51. If $A : B = 2 : 3$, $B : C = 4 : 5$, and $C : D = 6 : 7$ then $A : B : C : D$ is
 (A) $16 : 22 : 30 : 35$ (B) $16 : 24 : 15 : 35$ (C) $16 : 24 : 30 : 35$ (D) $18 : 24 : 30 : 35$
52. A solution of 165 litres contains 80% of acid and the rest water. How much water must be added to the above solution such that the resulting mixture contains 25% water ?
 (A) 11 litres (B) 8 litres (C) 9 litres (D) 10 litres
53. Below shown are three circles, each of radius 20 and centres at P, Q and R; further $AB=5$, $CD=10$ and $EF=12$. What is the perimeter of the triangle PQR?



- (A) 120 (B) 66 (C) 93 (D) 87
54. If $\frac{a^2 + b^2}{c^2 + d^2} = \frac{ab}{cd}$, then find the value of $\frac{a + b}{a - b}$ in terms of c and d only.
 (A) $\frac{c + d}{cd}$ (B) $\frac{cd}{c + d}$ (C) $\frac{c - d}{c + d}$ (D) $\frac{c + d}{c - d}$
55. In the given diagram $\triangle ABC$ is an isosceles right angled triangle, in which a rectangle is inscribed in such a way that the length of the rectangle is twice of breadth. Q and R lie on the hypotenuse and P, S lie on the two different smaller sides of the triangle. What is the ratio of the areas of the rectangle and that of triangle ?



- (A) $\sqrt{2} : 1$ (B) $1 : \sqrt{2}$ (C) $1 : 2$ (D) $\sqrt{3} : 2$

Rough Space

56. From a container, 6 litres milk was drawn out and was replaced by water. Again 6 litres of mixture was drawn out and was replaced by the water. Thus the quantity of milk and water in the container after these two operations is 9 : 16. The quantity of mixture is :
 (A) 15 (B) 16 (C) 25 (D) 31
57. $\frac{(125)^n \times 5^2 \times \left(5^{-\frac{n}{2}}\right)^3 - (5^n)^{3/2}}{5^{3m} \times 2^3 \times 3} = \frac{1}{125}$ then which of the following is true
 (A) $2m - n + 2 = 0$ (B) $n - 2m - 2 = 0$ (C) $2m + n - 2 = 0$ (D) $n - 2m + 2 = 0$
58. Factorise $(1 - 2x - x^2)(1 - 2x + 3x^2) + 4x^4$
 (A) $(x - 1)^2$ (B) $(x - 1)^4$ (C) $(x + 1)^2$ (D) $(x + 1)^4$
59. Given that $4^{x+1} + 4^x = 3^{y+4} - 3^y$, where x and y are non negative integers then the value of $x - y$ is
 (A) 2 (B) 3 (C) -2 (D) -3
60. If $\left(x^3 + \frac{1}{x^3}\right) = 52$, then the value of $x + \frac{1}{x}$ is
 (A) 4 (B) 3 (C) 6 (D) 13
61. A number when divided by a divisor leaves a remainder of 24. When twice the original number is divided by the same divisor, the remainder is 11. What is the value of divisor ?
 (A) 37 (B) 35 (C) 59 (D) 13
62. A rectangular sheet of paper 22 cm long and 10 cm broad can be curved to form the lateral surface area of a right circular cylinder in two ways. Then the difference between the volumes of the two cylinders thus formed is
 (A) 200 cm^3 (B) 210 cm^3 (C) 250 cm^3 (D) 252 cm^3

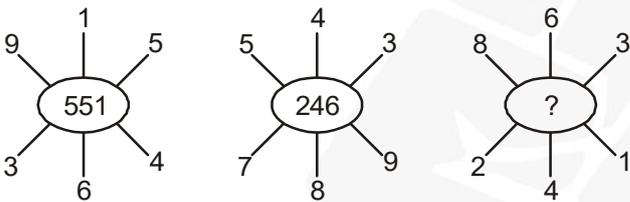
Rough Space

63. If the altitudes of a triangle are in the ratio 2 : 3 : 4, then the lengths of the corresponding sides are in the ratio:
 (A) 2 : 3 : 4 (B) 6 : 4 : 3 (C) 3 : 2 : 4 (D) 3 : 2 : 1
64. In $\triangle ABC$, segments AD, BE and CF are the altitudes. If $AB \times AC = 28.80$ and $BE \times CF = 20$, then $AD \times BC$ equals
 (A) 24.4 (B) 24.2 (C) 24.0 (D) 23.8
65. If $\left(\frac{1}{5}\right)^{3y} = 0.008$ then $(0.25)^{y/2} =$
 (A) 0.25 (B) 0.5 (C) 0.05 (D) 0.025
66. Let \bar{x} be the mean of x_1, x_2, \dots, x_n and \bar{y} then mean of y_1, y_2, \dots, y_n . If \bar{z} is the mean of $x_1, x_2, \dots, x_n, y_1, y_2, \dots, y_n$, then \bar{z} is equal to
 (A) $\bar{x} + \bar{y}$ (B) $\frac{\bar{x} + \bar{y}}{2}$ (C) $\frac{\bar{x} + \bar{y}}{n}$ (D) $\frac{\bar{x} + \bar{y}}{2n}$
67. The sides of a triangle are 50cm, 78cm and 112cm. The smallest altitude is
 (A) 20cm (B) 30cm (C) 40cm (D) 50cm
68. If the equation of a straight line is $x + y = 5$, then its slope and interection of y axis will be :
 (A) 5, -1 (B) -1, 5 (C) -1, -5 (D) 1, 5
69. The points of intersection of the line $5y - 7x = 70$ with both the axes are -
 (A) (0, -10) & (14, 0) (B) (10, 0) & (0, -14) (C) (0, 10) & (-14, 0) (D) (-10, 0) & (0, 14)
70. If $x = \sqrt[3]{2 + \sqrt{3}}$, then $x^3 + \frac{1}{x^3} =$
 (A) 2 (B) 4 (C) 8 (D) 9

Rough Space

71. In a certain code, **256** means **you are good**, **637** means **we are bad** and **358** means **good and bad**. Which of the following does represent **and** in that code ?
 (A) 2 (B) 5 (C) 8 (D) 3

Directions : (Question : 2 to 3) Find the missing number(s) :

72. 
 (A) 262 (B) 622 (C) 631 (D) 226

73.

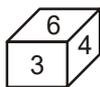
1	2	3
1	8	?
1	4	9

 (A) 6 (B) 27 (C) 30 (D) 12

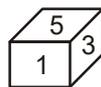
74. Kishan walks 10 km towards North. From there, he walks 6 km towards South. Then, he walks 3 km towards East. How far and in which direction is he with reference to his starting point?
 (A) 5 km, North (B) 5 km, North-East (C) 7 km, East (D) 7 km, West

Directions : Find the missing letters :

75. A3P, C5N, E8K, G12G, ?
 (A) I15D (B) I17B (C) I17D (D) J16B
76. On the basis of two figures of dice, you have to tell what number will be on the opposite face of number 5?



(i)



(ii)

- (A) 1 (B) 2 (C) 4 (D) 6
77. The numbers follow a series as per some rule. find out the missing number which will come in place of _____ from amongst the four alternatives.
 7, 15, 33, 71, _____
 (A) 147 (B) 148 (C) 149 (D) 151

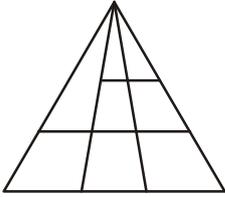
Rough Space

Direction : (Question : 8) Choose the missing term from the given options.

78. AKU, FPZ, _____, PZJ, UEO, ZJT
 (A) KUE (B) JTD (C) JUE (D) KVE
79. In a queue, Amrita is 10th from the front while Mukul is 25th from behind and Mamta is just in the middle of the two. If there be 50 persons in the queue, what position does Mamta occupy from the front?
 (A) 20th (B) 19th (C) 18th (D) 17th
80. In a class. Ajay is 15th. in rank from the top and 21st. from the bottom. How many students are there in the class?
 (A) 34 (B) 35 (C) 36 (D) 37
81. Pointing to a lady in the photograph, Manish said, "She is the daughter of my grand father's only son." How is Manish related to that lady?
 (A) Father (B) Uncle (C) Brother (D) Nephew
82. If $A + B$ means A 'is the son of' B; $A - B$ means A 'is the wife of' B; $A \times B$ means A 'is the brother of' B; $A \div B$ means A 'is the mother of' B and $A = B$ means A 'is the sister of' B. What does $P \times R \div Q$ mean?
 (A) P is the brother of Q (B) P is the father of Q
 (C) P is the uncle of Q (D) P is the nephew of Q
83. A clock is so placed at 12 noon its minute hand points towards north-east. In which direction does its hour hand points at 1.30 pm?
 (A) North (B) South (C) East (D) West
84. If \times means 'addition', $-$ means 'division', \div means 'subtraction' and $+$ means 'multiplication', then which of the following equations is correct?
 (A) $16 \times 5 \div 10 + 4 = 19$ (B) $16 + 5 \div 10 \times 4 - 3 = 9$
 (C) $16 + 5 - 10 \times 4 \div 3 = 9$ (D) $16 - 5 \times 10 \div 4 + 3 = 12$
85. This question is based on letter series in which some letters are missing. The missing letters are given in a proper sequence as one of the alternatives among the given four alternative.
 c — b b b — — a b b b b — a b b b —
 (A) a a b c b (B) a b c c b (C) a b a b b (D) b a c b b
86. If 'green' means 'red', 'red' means 'yellow', 'yellow' means 'blue', 'blue' means 'orange' and 'orange' means 'green', what is the colour of clear sky?
 (A) Blue (B) Red (C) Yellow (D) Green

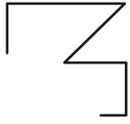
Rough Space

87. How many triangles are there in the following figure?

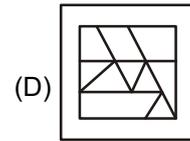
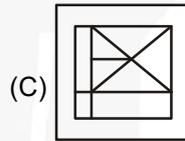
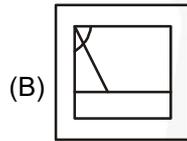
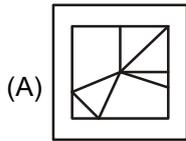


- (A) 11 (B) 13 (C) 8 (D) 12

88. Find out the alternative figure which contains figure (?) as its part.

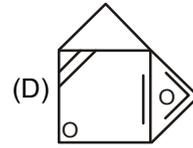
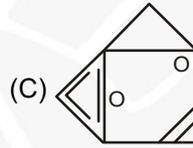
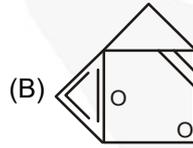
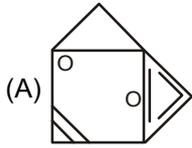
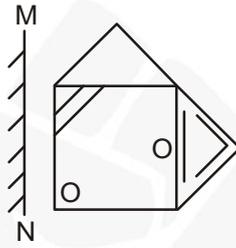


?

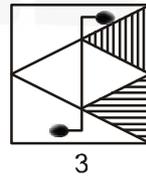
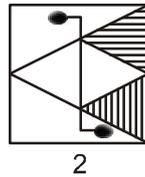
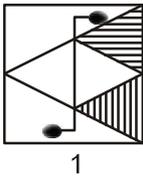
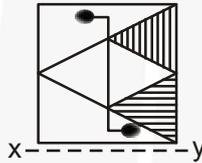


Rough Space

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



90. Choose the correct water image of the question figure, from the given answer figures (assume that water is along XY)



(A) 1

(B) 2

(C) 3

(D) 4

Rough Space



Syllabus



Class VIII

Physics

- Electric current and its effects.
- Force and Pressure
- Heat and Temperature
- Light
- Motion and Time
- Sound

Chemistry

- Acid, Bases and Salts
- Metals and non-Metals
- Physical and Chemical Changes
- Synthetic Fibre and Plastic
- Water
- Coal & Petroleum
- Combustion & Flame

Biology

- Cell Structure and Function
- Crop Production and management
- Micro Organisms : Friends and Foe
- Respiration in organisms
- Transportation in Animals and Plants
- Weather, climate and adaptation of animals to climate

Mathematics

- Power & exponents
- Square & Square Roots, Cub & Cube Roots
- Algebraic expression & identity
- Factorisation
- Linear Equation in one variable
- Comparing Quantities
- Congruent Triangles & Quadrilaterals
- Area
- Surface Area & Volume
- Visualizing Solid Shapes

IQ

- Blood Relation
- Coding-Decoding
- Direction Sense
- Cubes and Dice
- Counting of figures
- Insert the Missing character
- Mathematical operation
- Mirror Image & Water Image
- Number Ranking
- Number Series
- Embedded Figure
- Non-Verbal Series
- Venn-Diagram

Class IX

Physics

- Motion
- Force and Law of Motion
- Gravitation
- Light
- Sound

Chemistry

- Matter around us
- Is matter Around us Pure
- Atoms and Molecules
- Structure of atom
- Metal and Non-Metal

Biology

- Fundamental unit of life : CELL
- Tissue
- Improvement in Food Resources
- Micro Organism : Friend and Foe
- Reproduction & Reaching the age of adolescence.
- Pollution of Air and Water

Mathematics

- Number System
- Polynomial & its factorisation
- Triangle
- Quadrilateral & Circle
- Co-ordinate Geometry
- Linear Equation in two variables
- Area
- Surface Area & Volume
- Linear Equation in one variable
- Comparing Quantities

IQ

- Blood Relation
- Coding-Decoding
- Direction Sense
- Cube and Dice
- Counting of figures
- Insert the Missing character
- Mathematical operation
- Ranking (Number & Letter)
- Number Series
- Embedded Figure
- Non-verbal Series
- Mirror & Water Image
- Venn-Diagram

Class X

Physics

- Electricity
- Magnetism
- Optics
- Motion
- Force and Laws of Motion
- Work Power and Energy

Chemistry

- Chemical Reaction & Equation
- Acid, Bases and Salts
- Chemical Bonding
- Metal and Non-Metal
- Carbon & Its Compounds
- Atoms and Molecules
- Atomic Structure

Biology

- Nutrition
- Respiration
- Transportation
- Excretion
- Tissue
- How do organisms reproduce
- Why do we fall ill?
- Diversity in living organisms

Mathematics

- Number Theory
- Real Number
- Polynomial
- Pair of Linear Equation
- Similar Triangle
- Circle
- Area
- Surface Area & Volume
- Trigonometry
- Co-ordinate Geometry
- Area of Parallelogram & Triangle

IQ

- Blood Relation
- Clock & Calendar
- Cubes and Dice
- Coding and Decoding
- Direction Sense
- Insert the Missing Character
- Mathematical Operation
- Ranking (Number & Letter)
- Puzzle
- Sitting Arrangement
- Venn-Diagram & Syllogism
- Embedded Figure
- Mirror & Water Image
- Counting Figure
- Analogy