



M.M. 100

TIME 50 MIN.

Name :

Father Name :

Mobile No. :

IMPORTANT INSTRUCTIONS

1. This booklet contains 50 Questions.
2. All questions are compulsory and carry 2 mark,
3. There will be no negative marking.
4. Immediately fill in the particulars on this page of the Test Booklet with Blue/Black Ball Point Pen. Use of pencil is strictly prohibited.
5. You will not be supplied the Answer-Sheet separately by the invigilator. You must complete the details of *Name* , *Father Name and Mobile Number* on the Answer-Sheet carefully, as per detailed instructions supplied by Academy, before you actually start answering the questions, failing which your Answer-Sheet will not be evaluated and you will be awarded 'ZERO' mark.
6. No candidate is allowed to carry any textual material, printed or written, bits of papers, mobile phone, any electronic device, etc., except the I - Card, inside the examination hall/room.
7. Rough work is to be done on the space provided for this purpose in the Test Booklet only. Use of white fluid for correction is not permissible on the Answer Sheet. No rough work is to be done on the Answer-Sheet.
8. On completion of the test, the candidate must hand over the Answer Sheet to the Invigilator on duty in the Room/ Hall; however, the candidates are allowed to take away this Test Booklet with them.



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The Temple of Education

SCIENCE**SECTION - A (Single Correct)**

1. If the mass of a body is doubled and velocity becomes half, then kinetic energy of the body will be
(A) Doubled (B) Quarter (C) Half (D) Same
2. A man walks 5 m towards east and turns right and moves 12 m. The magnitude of his displacement is
(A) 7 m (B) 17 m (C) 15 m (D) 13 m
3. It is advised not to keep the box on the roof of the bus untied. Because when the driver applies brakes it may fall
(A) Backward (B) To the right of the bus
(C) To the left of the bus (D) Forward
4. Which of the following has the highest rate of diffusion?
(A) Solid (B) Liquid (C) Gas (D) All of these
5. Which among the following statements is wrong?
(A) Evaporation is a spontaneous process
(B) Evaporation is a surface phenomenon
(C) Boiling is a bulk phenomenon
(D) Boiling point of a liquid decreases on increasing the atmospheric pressure
6. A salt solution is obtained by dissolving 40 g of salt in 60 g of water. What must be done to make this salt solution 50%?
(A) Add 20 g of water to the solution
(B) Add 20 g of salt to the solution
(C) Add 10 g of salt and 10 g of water to the solution
(D) Both (A) and (B)

Space for Rough Work

SECTION - B (Comprehension)

Read the passage and give the answer of the following questions:

A chemical formula represents the composition of a molecule of the substance in terms of the symbols of the elements present in the molecule. For writing the chemical formula of different compounds, it is essential to know the symbols and the combining capacity of the elements. The combining power of an element is known as its valency.

7. A chemical formula represents
 (A) Composition of matter (B) Composition of a molecule
 (C) Composition of an atom (D) All of these
8. Valency of an atom is
 (A) Its combining power to form a compound (B) Indicate the formula of a compound
 (C) Always 1 (D) All of these
9. Important information required to write a chemical formula is
 (A) Symbols (B) Valency
 (C) Number of electrons in the atom (D) Both (A) and (B)

SECTION - C (Matrix Match)

10. Match the following :

Column I

a. Shock

b. Echo

c. Ultrasonic waves

d. Longitudinal waves

(A) a(i), b(ii), c(iii), d(iv)

(C) a(iii), b(i, ii), c(ii), d(iv)

Column II

(i) Room of size $\frac{1}{20}$ th of the magnitude of velocity
of sound

(ii) Velocity of object $> 320 \text{ ms}^{-1}$ in air

(iii) Require a medium to propagate

(iv) Frequency $> 20,000 \text{ Hz}$

(B) a(ii, iii), b(i, ii), c(iii, iv), d(iii)

(D) a(iv), b(iii), c(iii,iv), d(i)

Space for Rough Work

11. Match the following :

Column I

- a. Isotopes
 b. Isotones
 c. Isobars
 d. Isoelectronic species
 (A) a(i), b(ii), c(iii), d(iv)
 (C) a(iii), b(iv), c(ii), d(i)

Column II

- (i) Species with same number of electrons
 (ii) Atoms with same mass number
 (iii) Atom with same atomic number but different mass number
 (iv) Atoms with same number of neutrons
 (B) a(ii), b(iii), c(iv), d(i)
 (D) a(iv), b(iii), c(ii), d(i)

SECTION - D (Assertion-Reason)

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R).

- (A) If both Assertion & Reason are true and the Reason is correct explanation of the Assertion, then mark (A).
 (B) If both Assertion & Reason are true but the Reason is not the correct explanation of the Assertion, then mark (B).
 (C) If Assertion is true statement but Reason is false, then mark (C).
 (D) If both Assertion and Reason are false statements, then mark (D).

12. A : The relative density has no unit.

R : Relative density is the ratio of density of the substance to the density of water.

13. A : When a body is immersed in water, it loses weight.

R : The downward thrust acts on the body immersed in water.

14. A : A block of wood rises up faster in a salt solution than in pure water.

R : The density of pure water is greater than the density of salt solution.

15. In angiosperms

(A) Xylem possesses vessels

(B) Phloem has sieve tubes and companion cells

(C) Flowers are reproductive structures

(D) All of these

16. Which of the following groups contains triploblastic animals having true body cavity?

(A) Platyhelminthes

(B) Nematoda

(C) Annelida

(D) Cnidaria

17. BCG vaccination is given for the prevention of

(A) Polio

(B) Tuberculosis

(C) Tetanus

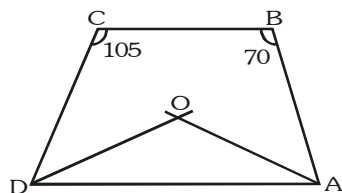
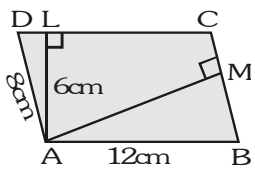
(D) Anthrax

Space for Rough Work

18. Which of the following is a mismatch?
 (A) Leprosy – Bacterial infection (B) AIDS – Bacterial infection
 (C) Malaria – Protozoan infection (D) Elephantiasis – Nematode infection
19. Nitrifying bacteria are closely associated with which of the following biogeochemical cycle?
 (A) Carbon cycle (B) Nitrogen cycle (C) Water cycle (D) Oxygen cycle
20. In the coastal areas, during day time, the direction of wind is different than that of night time. Which of the following statements (s) is/are true with regards to day time conditions?
 (a) Warm air over land rises up (b) Warm air over sea rises up
 (c) Wind flows from sea to land (d) Wind flows from land to sea
 (A) (a) and (c) (B) (b) and (d) (C) (a), (b) and (d) (D) All are correct

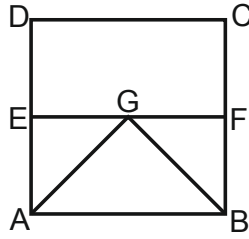
MATHEMATICS

SECTION - A (Single Correct)

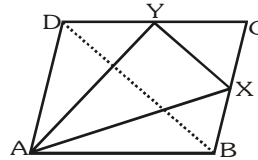
21. Find remainder when $x^4 + x^3 - 2x^2 + x + 1$ is divided by $x - 1$.
 (A) 1
 (B) 2
 (C) 3
 (D) 4
22. In the given figure, AO and DO are the bisector of the $\angle A$ and the $\angle D$ of the quadrilateral ABCD. Then the $\angle AOD$ is
 (A) 67.5° (B) 77.5°
 (C) 87.5° (D) 99.75°
- 
23. In fig, ABCD is a parallelogram, $AL \perp CD$ and $AM \perp BC$. If $AB = 12$ cm, $AD = 8$ cm and $AL = 6$ cm, then $AM =$
 (A) 15 cm (B) 9 cm (C) 10 cm (D) None of these
- 

Space for Rough Work

24. If ABCD is a rectangle, E, F are the mid points of BC and AD respectively and G is any point on EF, then ΔEGA equals.



- (A) $\frac{1}{2}$ ($\square ABCD$) (B) $\frac{1}{8}$ ($\square ABCD$)
 (C) $\frac{1}{4}$ ($\square ABCD$) (D) $\frac{1}{6}$ ($\square ABCD$)
25. ABCD is a parallelogram X and Y are the mid points of BC and CD respectively. Then, ar(parallelogram ABCD) is



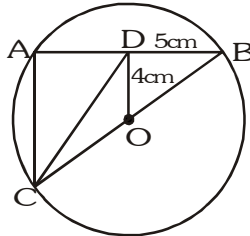
- (A) $4 \times \text{ar}(\Delta AXY)$
 (B) $3 \times \text{ar}(\Delta AXY)$
 (C) $\frac{8}{3} \times \text{ar}(\Delta AXY)$
 (D) None of these
26. In a ΔPQR , $PQ = PR$ and $\angle Q$ is twice that of $\angle P$. Then $\angle Q =$
 (A) 72° (B) 36° (C) 144° (D) 108°
27. A vessel is in conical shape. If its volume is 33.264 litres and height is 72 cm, the cost of repairing its CSA at Rs. 12/sq m is:
 (A) 5.94 (B) 6.94 (C) 7.95 (D) None of these
28. Each side of a cube is increased by 50%. Then the surface area of the cube increases by :
 (A) 50% (B) 100% (C) 125% (D) 150%
29. The mean of first five alternate prime numbers is :-
 (A) 5.6 (B) 12.7
 (C) 13.4 (D) 11.6

Space for Rough Work

30. A bag contains 5 red and 4 black balls. Two ball is drawn one by one from the bag. Then, the probability of getting a black ball and a red ball is

- (A) $\frac{4}{5}$ (B) $\frac{5}{9}$ (C) $\frac{9}{20}$ (D) $\frac{1}{4}$

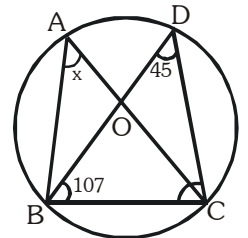
31. O is the centre of the circle. BC is a diameter of the circle. OD \perp AB (chord). If OD = 4 cm, BD = 5 cm, then CD =



- (A) 13 cm (B) $\sqrt{71}$ cm (C) $\sqrt{89}$ cm (D) None of these

32. Find the value of x in the given figure.

- (A) 45° (B) 35°
(C) 60° (D) 55°

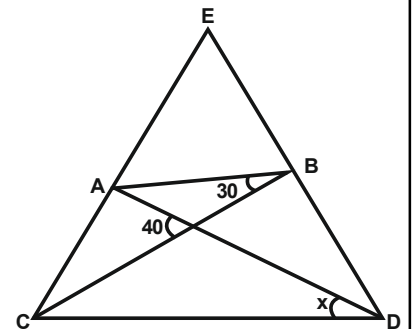


33. If $\left(x + \frac{1}{3}\right) \times y = x^3 + \frac{1}{27} + x^2 + \frac{1}{3}x$ then value of y is

- (A) $\left(x + \frac{1}{3}\right)^2$ (B) $\left(x - \frac{1}{3}\right)^2$ (C) $\left(x + \frac{1}{6}\right)^2$ (D) $\left(x - \frac{1}{6}\right)^2$

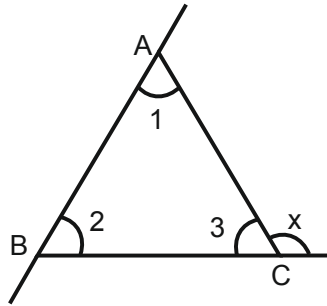
34. In $\triangle ECD$ AB \parallel CD then $\angle x$ is

- (A) 30° (B) 40°
(C) 10° (D) 20°



Space for Rough Work

35. In figure value of $\angle x$ is



- (A) $\angle 1 + \angle 3$ (B) $\angle 3 + \angle 2$ (C) $\angle 1 + \angle 2$ (D) None of these

MENTAL ABILITY

SECTION - A (Single Correct)

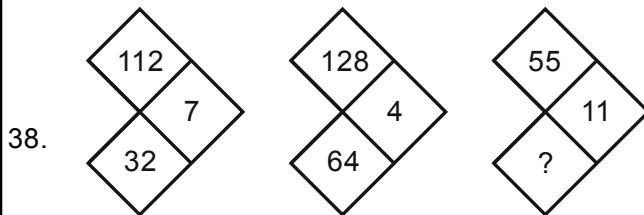
Directions (36 to 38) : Each question consists a number series/alphabetical series with one term missing which is shown by (?). Find the missing term:

36. 2, 5, 10, 13, 26, 29, ?

- (A) 32 (B) 44 (C) 52 (D) 58

37. BEH, KNQ, TWZ, ?

- (A) IJL (B) CFI (C) BDF (D) ADG



- (A) 5 (B) 10 (C) 12 (D) 13

Directions (39 to 40) : These questions have four options in which three belongs to same group. Find out the odd one:

39. (A) Trigonometry (B) Calculus (C) Algebra (D) Thermodynamics

40. Given set (256, 64, 16)

- (A) (160, 40, 10) (B) (144, 36, 9) (C) (80,20,5) (D) (64, 32, 8)

Space for Rough Work

Direction (41 to 48) : Choose the word from given alternatives, which bears same relationship to that group:

41. DWH : WDS :: FUL : ?

- (A) UFO (B) UFU (C) FOU (D) FLV

42. 2 : 8 :: 4 : ?

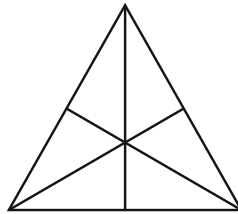
- (A) 24 (B) 64 (C) 40 (D) 44

43. Arrange the given words in meaningful sequence :

- (1) Maharashtra (2) Shirdi (3) India (4) Asia
(5) World

- (A) (2), (1), (3), (4), (5) (B) (1), (2), (5), (4), (3)
(C) (5), (1), (2), (4), (3) (D) (3), (2), (1), (4), (5)

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



- (A) 8 (B) 9 (C) 16 (D) 11

45. If + means \times , - means \div , \times means - and \div means +, then the value of $32 \div 8 - 4 \times 12 + 4$ is

- (A) -14 (B) -41 (C) -40 (D) -12

46. If 17th September of a year was Monday, what will be the day on 29th October of the same year?

- (A) Saturday (B) Sunday (C) Monday (D) Tuesday

47. A husband and wife had five married sons and each of them had four children. How many members are there in the family?

- (A) 50 (B) 40 (C) 32 (D) 36

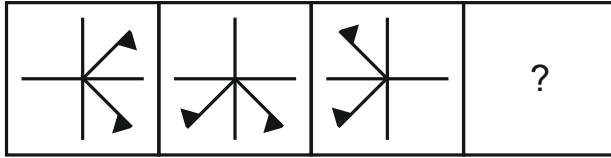
48. Pointing to Keshav, Priyanka said, "His mother's brother is the father of my son Nikhil". How is Keshav related to Priyanka?

- (A) Niece (B) Aunt (C) Nephew (D) Sister-in-law

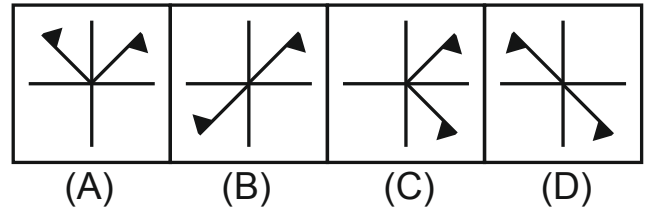
Space for Rough Work

Direction (49 to 50) : Each of the following problems, contains four Problem Figures marked A, B, C, and D and four Answer Figures marked (A), (B), (C) and (D). Select a figure from amongst the Answer Figures which will continue the same series as given in the Problem Figures.

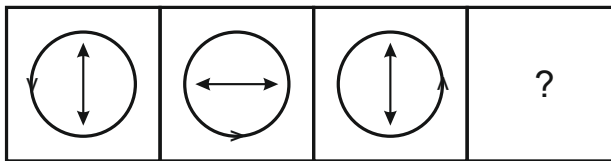
49. Problem Figure :



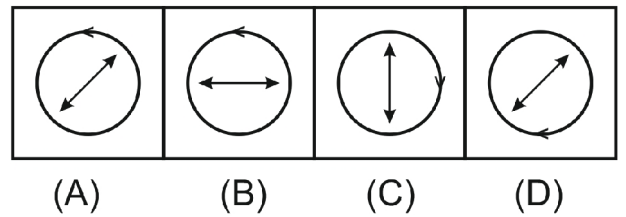
Answer Figure :



50. Problem Figure:



Answer Figure :



Space for Rough Work

ANSWER KEY (CLASS 9TH)									
1	2	3	4	5	6	7	8	9	10
C	D	D	C	D	B	B	A	D	B
11	12	13	14	15	16	17	18	19	20
C	A	C	C	D	C	B	B	B	A
21	22	23	24	25	26	27	28	29	30
B	C	B	B	C	A	D	C	D	B
31	32	33	34	35	36	37	38	39	40
C	A	A	A	C	D	B	B	D	D
41	42	43	44	45	46	47	48	49	50
A	B	A	C	A	C	C	B	A	B