



Class – VI

School Integrated Program

ENTRANCE TEST CUM SCHOLARSHIP TEST

[Time: 3 Hours]

[Max Marks: 300]

A. General:

1. *This booklet is a Question Paper containing 150 questions.*
2. *Blank Papers, Clipboards, Log Tables, slide rules, calculators, cellular phones, pagers and electronic gadgets in any form are not allowed to be carried inside the examination hall.*
3. *The answer sheet, a machine-readable optical mark recognition sheet (OMR Sheet), is provided separately.*
4. *DO NOT TAMPER WITH THE OMR OR THE BOOKLET.*
5. *Please fill your roll number correctly in the OMR sheet (answer sheet).*
6. *Both Question Paper and OMR Answer Sheet will be submitted after completion of this examination.*

B. Question Paper Format and marking scheme:

1. *The Question Paper consists of five parts (Part I: MAT, Part II: Physics, Part III: Chemistry, Part IV: Biology, Part V: Mathematics).*
2. *Each Question carries +3 marks for correct answer and -1 mark for incorrect answer.*

MAT

1. Choose the alternative which is closely resembles the water-image of the given combination.

monday

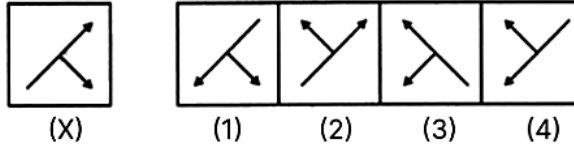
- (a) **yadnom** (b) **γsbnom**
(c) **λe quow** (d) **wouqsl**

2. Choose the alternative which is closely resembles the water-image of the given combination.

bridge

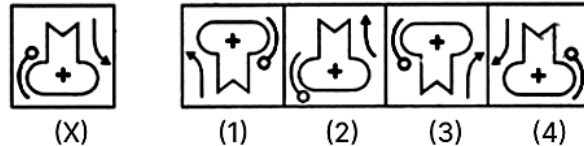
- (a) **priqde** (b) **priqde**
(c) **priqde** (d) **pripde**

3. Choose the correct mirror image of the given figure (X) from amongst the four alternatives.



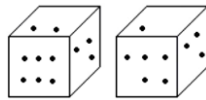
- (a) 1 (b) 2 (c) 3 (d) 4

4. Choose the correct mirror image of the given figure (X) from amongst the four alternatives.



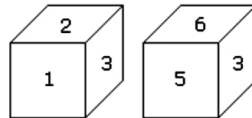
- (a) 1 (b) 2 (c) 3 (d) 4

5. Two positions of dice are shown below. How many points will be on the top when 2 points are at the bottom?



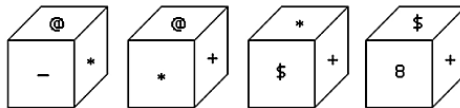
- (a) 6 (b) 5 (c) 4 (d) 1

6. Which digit will appear on the face opposite to the face with number 4?



- (a) 3 (b) 5 (c) 6 (d) 2/3

7. Which symbol will be on the face opposite to the face with symbol *?



- (a) @ (b) \$ (c) 8 (d) +

8. What number should come next in the series: 58, 52, 46, 40, 34,...

- (a) 26 (b) 28 (c) 30 (d) 32

9. Look at this series: V, VIII, XI, XIV, ____ XX. What number should fill the blank?

- (a) IX (b) XXIII (c) XV (d) XVII

10. What number should come next in the series: 36, 34, 30, 28, 24,...

- (a) 20 (b) 22 (c) 23 (d) 26

11. What number should come next in the series: 2, 1, $\frac{1}{2}$, $\frac{1}{4}$,...

- (a) $\frac{1}{4}$ (b) $\frac{1}{8}$ (c) $\frac{2}{7}$ (d) $\frac{1}{16}$

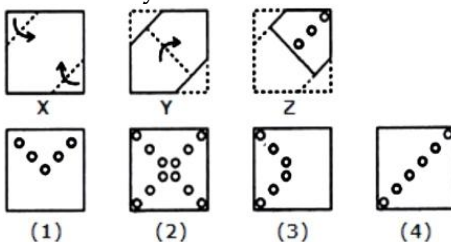
12. In a certain code "DELHI" is written as 38, how is "PATNA" written in that code?

- (a) 50 (b) 61
(c) 52 (d) None of these

13. In a certain code FIRE is coded as DGPC. What will be the last letter of the coded word for SHOT.

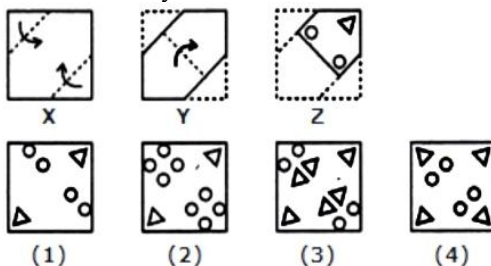
(a) Q (b) R (c) s (d) P

14. Choose a figure which would most closely resemble the unfolded form of Figure (Z).



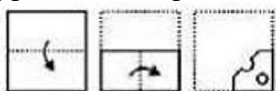
(a) 1 (b) 2 (c) 3 (d) 4

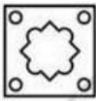
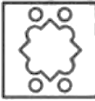
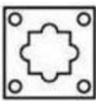
15. Choose a figure which would most closely resemble the unfolded form of Figure (Z).



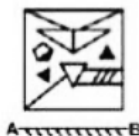
(a) 1 (b) 2 (c) 3 (d) 4

16. A piece of paper is folded and punched as shown below in the question figures. From the given answer figures, indicate how it will appear when opened?



(a)  (b)  (c)  (d) 

17. If a mirror is placed on the line AB, then out of the option figures which figure will be the right image of the question figure?



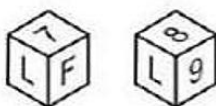
(a)  (b)  (c)  (d) 

18. In the following question, select the missing number from the given series.

2,3,5,7,11,?

(a) 19 (b) 16 (c) 20 (d) 13

19. Two positions of a dice are given below. What can come on the adjacent faces of the face containing 'F' on it?



(a) 8 and L (b) 7 and 9 (c) 9 and 8 (d) L and 9

20. If $14 \text{ A } 13 \text{ A } 3 = 30$ and $39 \text{ A } 14 \text{ A } 3 = 56$, then $28 \text{ A } 11 \text{ A } 4 = ?$

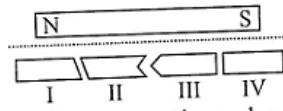
(a) 57 (b) 40 (c) 63 (d) 43

21. Select the option that is related to the sixth number in the same way as the first number is related to the second number and the third number is related to the fourth number.

11:81::22:400::?:225

(a) 11 (b) 13 (c) 17 (d) 15

34. In ancient times rocks containing magnets are called _____.
 (a) Magnet (b) Magnetite (c) Iron (d) freeze
35. Which of the following conversions is/are incorrect?
 (i) 10 decades = 1 century (ii) 100 centuries = 1 millennium
 (iii) 100 inches = 2.54 metres (iv) 100 millimetres = 10 centimetres
 (a) (ii) only (b) (iv) only
 (c) (i) and (ii) only (d) (iii) and (iv) only
36. A bar magnet has been broken into four pieces I, II, III and IV.

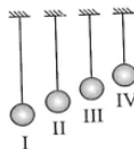


Which of the following options shows the correct poles in broken pieces?

- A. $\boxed{N \ N} \ \boxed{S \ S} \ \boxed{N \ N} \ \boxed{S \ S}$
 B. $\boxed{N \ S} \ \boxed{S \ N} \ \boxed{N \ S} \ \boxed{S \ N}$
 C. $\boxed{N \ S} \ \boxed{N \ S} \ \boxed{N \ S} \ \boxed{N \ S}$
 D. $\boxed{S \ N} \ \boxed{S \ N} \ \boxed{N \ S} \ \boxed{N \ S}$
- (a) A (b) B (c) C (d) D
37. If the particle is moving with a speed of 72km/hr. what will be its speed in m/s
 (a) 15m/s (b) 10m/s
 (c) 20m/s (d) None of these
38. If the simple pendulum takes 20s to complete 10oscillations. How much time it will take to complete 220 oscillations
 (a) 110s (b) 220s
 (c) 440s (d) None of these
39. Match the following:

Column I	Column II
(1) Hands of the clock	(A) periodic motion
(2) Train moving on a track	(B) rotaional motion
(3) Rocking chair	(C) circular motion
(4) Wheel of a cycle	(D) linear motion

- (a) 1 – D, 2 – B, 3 – C, 4 – A (b) 1 – A, 2 – D, 3 – C, 4 – B
 (c) 1 – C, 2 – D, 3 – A, 4 – B (d) 1 – C, 2 – A, 3 – D, 4 – B
40. One millimetre on a scale is divided into 20 equal divisions. The least count (minimum value) of this scale is
 (a) 20cm (b) 1mm (c) 0.1mm (d) 0.05mm
41. There are four pendulums as shown in the given figure. Which of the following pendulums has the shortest time period?



- (a) I (b) II (c) III (d) IV
42. The given table shows the variation of distance s travelled in t^{th} second by a car as it starts moving along a road. The speed of the car is

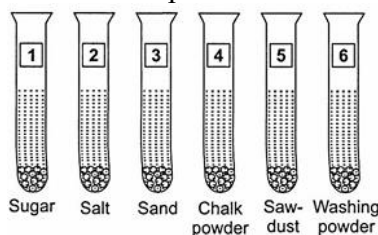
t^{th} second	1	2	3	4	5	6
s in metre	50	43	37	41	50	55

- (a) First decreasing then remaining constant (b) First increasing then decreasing
 (c) First decreasing then increasing (d) Continuously increasing.
43. What name is given to the device that makes a strong magnet by passing electricity through a coil of wire wrapped around a block of iron?
 (a) Electric kettle (b) Crane (c) Solenoid (d) Transformer

44. In which direction does the bar magnet come to rest when suspended freely?
- (a) South-west direction (b) North-east direction
(c) East-west direction (d) North-south direction
45. Choose the wrong statement
- (a) Heat can destroy magnetic properties of a magnet.
(b) Magnets are made up of different materials and different shapes.
(c) There is a maximum attraction in middle of a magnet.
(d) Magnet show maximum attraction near poles

CHEMISTRY

46. An iron nail is kept in each of the following liquids. In which case would it lose its shine and appear dull?
- (a) Mustard oil (b) Soft drink (c) Coconut oil (d) Kerosene
47. Pick one material from the following which is completely soluble in water.
- (a) Chalk powder (b) Tea leaves (c) Glucose (d) Saw dust
48. You are provided with the following materials
- (i) Magnifying glass (ii) Mirror
(iii) Stainless steel plate (iv) Glass tumbler
- Which of the above materials will you identify as transparent?
- (a) (i) and (ii) (b) (i) and (iii) (c) (i) and (iv) (d) (iii) and (iv)
49. Take 10 mL of water in 6 test tubes each and add different samples of substances to each test tube as shown in the given figure. Shake the test tubes vigorously for a couple of seconds and leave them undisturbed. In which of these test tubes, sample substances will remain insoluble in water?



- (a) 1, 2 and 3 (b) 2, 3 and 4 (c) 3, 4 and 5 (d) 4, 5 and 6
50. Nishant put an object in front of a beam of light and noticed that a dark sharp shadow was immediately formed. What type of object did he place in front of light?
- (a) A transparent object (b) A translucent object
(c) An opaque object (d) A flexible object
51. Sunita classified different materials based on their properties. Which of the following sets are correctly matched?

Set	Hard	Opaque	Floats in water	Insoluble in water
I	Sponge	Butter paper	Glass marble	Honey
II	Steel	Wooden board	Ice	Mustard oil
III	Iron nail	Glass	Grass	Sugar candy
IV	Lump of sugar	Thermocol	Hair	Glass powder

- (a) II and IV (b) I and II (c) III and IV (d) All of these
52. The table given below shows some objects that have been grouped based on a certain property

P	Q
Wooden ruler Copper wire Plastic cup	Iron rod Steel spoon

What is the property on which the objects have been grouped?

- (a) The ability to conduct electricity. (b) The ability to conduct heat.
(c) The property of being attracted by a magnet. (d) The ability to reflect light.

53. Why are the storage containers used by retail grocers and pharmacists to hold spices, grains, or medicines typically manufactured from glass or clear high-grade plastics instead of thick wood or opaque sheets of steel?
- Opaque steel containers chemically react with all non-living food grains instantaneously.
 - Glass and transparent plastics allow light to pass through smoothly, enabling the seller to locate contents easily without opening the containers.
 - Transparent plastics possess an infinitely lower mass value than the items stored inside them.
 - Wood is structurally highly soluble when exposed to ambient atmospheric air inside a shop.
54. In ancient Indian medical philosophy (Ayurveda), physical matter and living systems are characterized comprehensively by ten pairs of opposite physical qualities known as 'guṇas'. Which of the following properly matches an Ayurvedic terminology with its accurate, scientifically relevant pair of opposites?
- Guru (heavy) vs laghu (light in weight); mridu (soft) vs kṛthina (hard)
 - Hima (hot) vs uṣhṇa (cold); śhlakṣhaṇa (rough) vs khara (smooth)
 - Sāndra (liquid) vs drava (solid); sthira (moving) vs khāla (stable)
 - Sūkṣhma (big) vs sthūla (small); viśhada (slimy) vs picchhila (non-slimy)
55. A laboratory researcher is testing the volumetric units of matter. The experimental setup requires exactly one cubic metre of fluid space. Based on standardized SI conversions, how many litres (L) of water correspond precisely to a volume of 1 m^3 ?
- 1 L
 - 100 L
 - 1,000 L
 - 10,000 L
56. Archeologists studying the historical timeline of the Indian subcontinent observe that ancient wheel-turned pottery techniques with applied slips (pigmented coatings) reached highly sophisticated operational levels during the Sindhu-Sarasvati (Harappan) Civilisation (2600-1900 BCE). When clay pottery is baked completely inside high-temperature kilns, what specialized term is used to describe this specific material?
- Cellophane
 - Terracotta
 - Lustrous composite
 - Amorphous plastic matrix
57. A medical relief worker needs to prepare an oral rehydration solution (ORS) to treat a patient suffering from severe dehydration. If commercial pre-packaged ORS packets are unavailable in the clinic, what formula should be executed using pure water to make an equivalent solution at home?
- Mix 50 grams of sawdust and 10 grams of sand in half a litre of hot oil.
 - Mix six teaspoons of sugar and half a teaspoon of common salt thoroughly in one litre of boiled and cooled water.
 - Dissolve two tablespoons of chalk powder and one cup of lemon juice in a glass container.
 - Combine equal parts vinegar, honey, and mustard oil in an opaque metallic tumbler.
58. A student mixes five distinct powder samples individually into five separate glass tumblers filled with water, followed by vigorous mechanical stirring for several minutes. The results are recorded below:
- Sample 1: Disappears completely, fluid remains transparent.
 - Sample 2: Disappears completely, fluid remains clear.
 - Sample 3: Settles as a white layer at the base, fluid stays cloudy.
 - Sample 4: Settles completely at the base, unchanged.
 - Sample 5: Floats extensively on the upper surface, completely unchanged.
- Identify the sequence of samples that corresponds correctly to [Sugar, Salt, Chalk Powder, Sand, Sawdust].
- Sample 5, Sample 4, Sample 3, Sample 2, Sample 1
 - Sample 1, Sample 2, Sample 3, Sample 4, Sample 5
 - Sample 2, Sample 1, Sample 4, Sample 3, Sample 5
 - Sample 3, Sample 4, Sample 5, Sample 1, Sample 2

59. Analyze the scientific validity of the following statements regarding the physical state of gases in aquatic ecosystems:
 Statement I: Gases like oxygen are completely insoluble in water, which forces fish to surface to breathe air.
 Statement II: Dissolved oxygen gas in natural water bodies is extremely vital for the metabolic survival of aquatic animals and plants.
 Which option represents the correct analytical conclusion?
 (a) Statement I is fully true, but Statement II is completely false.
 (b) Both Statement I and Statement II are fully true.
 (c) Statement I is false, but Statement II is fully true.
 (d) Both Statement I and Statement II are completely false.
60. Why is it structurally impossible to use an ordinary piece of woven cotton cloth to make a functional water tumbler intended for daily drinking use?
 (a) Cloth is a highly lustrous metal that conducts heat too rapidly.
 (b) Cloth is classified as a transparent medium which causes light to evaporate the fluid.
 (c) Woven cotton cloth dissolves instantaneously when it comes into direct chemical contact with liquid water molecules.
 (d) The material fibers of a cloth create an extremely porous structure that is incapable of holding water without leaking.

BIOLOGY

61. Animals that have a backbone are called:
 (a) Invertebrates (b) Vertebrates
 (c) Molluscs (d) None of these
62. Which of the following is an invertebrate?
 (a) Fish (b) Frog (c) Earthworm (d) Snake
63. Animals that can live both on land and in water are called:
 (a) Reptiles (b) Mammals (c) Amphibians (d) Aves
64. Which group of animals lay eggs and have feathers?
 (a) Mammals (b) Reptiles (c) Birds (d) Fish
65. The largest group of animals in the animal kingdom is:
 (a) Mammals (b) Insects (c) Birds (d) Fish
66. Cold-blooded animals with dry, scaly skin are:
 (a) Amphibians (b) Reptiles (c) Mammals (d) Birds
67. Food that helps us grow and repair body is:
 (a) Carbohydrates (b) Fats (c) Proteins (d) Vitamins
68. Which is NOT a sign of mindful eating?
 (a) Eating slowly (b) Noticing taste and smell
 (c) Scrolling phone while eating (d) Stopping when full
69. Roughage in our diet helps in:
 (a) Giving energy (b) Building muscles
 (c) Proper digestion (d) Making bones strong
70. Which of these is junk food?
 (a) Apple (b) Chapati (c) Burger (d) Dal
71. We should not talk while eating because:
 (a) Food gets cold (b) We may choke
 (c) Others get disturbed (d) Food tastes bad
72. The best way to know if you are really hungry is to:
 (a) Check the clock (b) See ads of food
 (c) Listen to your stomach (d) Ask friends

73. Overeating can cause:
 (a) Good health (b) Obesity (c) More energy (d) Energy
74. Which nutrient protects us from diseases?
 (a) Carbohydrates (b) Proteins (c) Vitamins (d) Minerals
75. Eating meals together with family helps in:
 (a) Wasting time (b) Better bonding (c) Eating more junk (d) Fighting

MATHEMATICS

76. An angle is 24° more than twice its complement. What is the measure of the supplement of this angle?
 (a) 112° (b) 136° (c) 68° (d) 44°
77. Two parallel lines AB and CD are intersected by a transversal t. If the ratio of two interior angles on the same side of the transversal is 4 : 5, what is the degree measure of the smaller angle?
 (a) 40° (b) 60° (c) 80° (d) 100°
78. At 3:40, what is the reflex angle between the hour hand and the minute hand of a standard 12-hour clock?
 (a) 130° (b) 230° (c) 240° (d) 220°
79. Two angles are complementary. If one angle is increased by 15° and the other is decreased by 15° , their new ratio is 1 : 2. What was the original larger angle?
 (a) 45° (b) 50° (c) 40° (d) 75°
80. Three rays OA, OB, and OC share a common vertex O. If $\angle AOB = 3x - 10^\circ$, $\angle BOC = 2x + 15^\circ$, and $\angle AOC = 4x + 20^\circ$, where ray OB lies strictly between rays OA and OC, what is the value of x?
 (a) 15° (b) 20° (c) 25° (d) 30°
81. The 6-digit number $4a56b2$ is divisible by 72. What is the maximum possible value of $(a + b)$?
 (a) 8 (b) 10 (c) 14 (d) 15
82. A 3-digit number ABC when subtracted from its reverse CBA gives 594. If $A + C = 12$, what is the product $A \times C$?
 (a) 27 (b) 32 (c) 35 (d) 20
83. How many two-digit numbers have the property that the sum of the digits plus the product of the digits equals the number itself?
 (a) 1 (b) 9 (c) 10 (d) 4
84. A magic square of size 3×3 contains numbers such that the sum of each row, column, and diagonal is equal to S. If the center cell is 17, what is the sum of all 9 cells in the square?
 (a) 102 (b) 136 (c) 153 (d) 204
85. If $2a + 3b$ is divisible by 17, which of the following expressions is always divisible by 17?
 (a) $9a + 5b$ (b) $10a + 15b$ (c) $17a + 3b$ (d) $a + 10b$
86. How many three-digit numbers are divisible by both 4 and 6, but not divisible by 8?
 (a) 37 (b) 38 (c) 75 (d) 36
87. The mean of 9 distinct positive integers is 20. If the median of these numbers is 18, what is the greatest possible value for the largest integer?
 (a) 90 (b) 101 (c) 115 (d) 126
88. In a pie chart representing the preferred subjects of 720 students, the central angle for Mathematics is 105° and for Science is 90° . How many more students prefer Mathematics than Science?
 (a) 25 (b) 30 (c) 35 (d) 40
89. A student scored an average of 84 marks across 5 tests. After including the sixth test score, the new mean increased to 86. What was the score in the sixth test?
 (a) 92 (b) 94 (c) 96 (d) 98
90. The mode of a set of 12 numbers is 15. The numbers 12, 14, 15, 16, 18 appear with frequencies 2, 2, k, 2, 1 respectively. If all other numbers appear at most once, what is the minimum possible value of k?
 (a) 2 (b) 3 (c) 4 (d) 5

91. In a frequency distribution table with class intervals 0-10, 10-20, 20-30, ..., to which class interval does the observation 20 strictly belong according to standard convention?
(a) 0-10 (b) 10-20
(c) 20-30 (d) Both 10-20 and 20-30
92. The average weight of 8 members in a crew increases by 1.5 kg when a member weighing 60 kg is replaced by a new person. The weight of the new person is:
(a) 68 kg (b) 70 kg (c) 72 kg (d) 75 kg
93. A bar graph uses a scale of 1 cm = 250 books. If the bar for History books has a height of 4.6 cm, how many History books are in the library?
(a) 1050 (b) 1150 (c) 1250 (d) 1125
94. Two numbers are in the ratio 15 : 11. If their HCF is 13, what is their LCM?
(a) 2145 (b) 165 (c) 1815 (d) 2255
95. Three bells toll together at intervals of 9, 12, and 15 minutes respectively. If they toll together now, after how many hours will they toll together next?
(a) 2 hours (b) 3 hours (c) 4.5 hours (d) 6 hours
96. The sum of three prime numbers is 100. One of them exceeds another by 36. What is the largest of these three prime numbers?
(a) 67 (b) 71 (c) 73 (d) 61
97. What is the smallest positive integer k such that $2520 \times k$ is a perfect cube?
(a) 300 (b) 450 (c) 150 (d) 7350
98. Let p be a prime number greater than 3. What is the remainder when p^2 is divided by 24?
(a) 1 (b) 5 (c) 7 (d) 13
99. The product of two numbers is 4107. If the HCF of these numbers is 37, the greater number is:
(a) 111 (b) 185 (c) 107 (d) 101
100. If n is a natural number, the expression $n^3 - n$ is always divisible by:
(a) 12 (b) 6 (c) 8 (d) 24