



Class – VIII

School Integrated Program

ENTRANCE TEST CUM SCHOLARSHIP TEST

[Time: 2 Hours]

[Max Marks: 400]

A. General:

1. *This booklet is a Question Paper containing 100 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.*

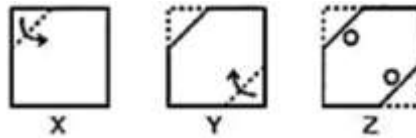
B. Question Paper Format and marking scheme:

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 +4 marks for correct answer and -1 mark for incorrect answer.*

MAT

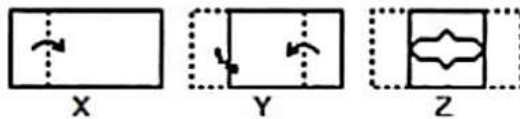
Direction (Q.1-3): In each of the following questions, a number series is given with one term missing. Choose the correct alternative that will continue the same pattern and replace the question mark in the given series.

1. 10,9,17,-10,54,?
 (a) -82 (b) -71 (c) -67 (d) -103
2. 169,319,519,769,1069,?
 (a) 1401 (b) 1391 (c) 1411 (d) 1419
3. 141,145,118,134,?,45
 (a) 9 (b) 81 (c) 63 (d) 36
4. If GOLD is coded as HOME, COME is coded as DONE and CORD is coded as DOSE, how would you code SONS?
 (a) TPOT (b) TOOT (c) TOOS (d) TONT
5. In a certain code 'LIMCA' is written as 'HJLDZ'. Which of the following words is written as 'IFWJBP'?
 (a) MEXICO (b) MERCURY (c) JAPAN (d) MIDNIGHT
6. Choose a figure which would most closely resemble the unfolded form of Figure (Z).



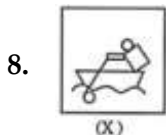
- (a) (b) (c) (d)

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

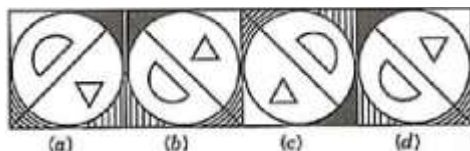
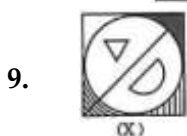


- (a) (b) (c) (d)

Direction (Q.8-9): In each of the following questions, choose the correct mirror-image of the Fig. (X) from amongst the four alternatives (a), (b), (c) and (d) given along with it.

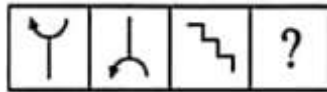


- (a) (b) (c) (d)



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

10. Select a suitable figure from the Answer Figures that would replace the question mark (?).



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

11. Select a suitable figure from the Answer Figures that would replace the question mark (?).



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

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



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

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



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

14. A man pointing to a photograph says, "The lady in the photograph is my nephew's maternal grandmother." How is the lady in the photograph related to the man's sister who has no other sister?

- (a) Cousin (b) Sister-in-law
(c) Mother (d) Mother-in-law

15. Q is the brother of R ; P is the sister of Q ; T is the brother of S ; S is the daughter of R . Who are the nephew/ neice of Q ?

- (a) R and P (b) P and T (c) Q and T (d) S and T

16. If $A + B$ means A is the mother of B ; $A - B$ means A is the brother B ; $A \% B$ means A is the father of B and $A \times B$ means A is the sister of B , which of the following shows that P is the maternal uncle of Q ?

- (a) $Q - N + M \times P$ (b) $P + S \times N - Q$
(c) $P - M + N \times Q$ (d) $Q - S \% P$

17. In the given question there are two statements followed by two conclusions numbers I & II. You have to take the given two statements to be true even if they seem to be at variance from commonly known facts. Read the conclusions and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

Statements:

All pens are roads. All roads are houses.

Conclusions:

I. All houses are pens.

II. Some houses are pens.

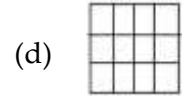
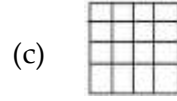
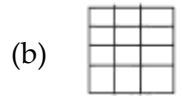
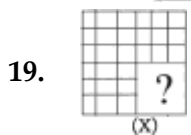
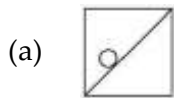
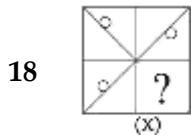
(a) Only I is true

(b) Only II is true

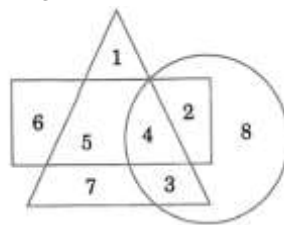
(c) Both are true

(d) Both are false

Direction (Q.18-19): In each of the following questions, select a figure from the four alternatives, which when placed in the space where the question mark is shown in figure (X) would complete the figure.



20. Which number is in all the geometrical figures?



(a) 3

(b) 4

(c) 5

(d) 8

21. Which of the following diagrams correctly represents the relationship among Tennis fans, Cricket players and students.



22. Danish starts walking straight towards East. After walking 75 m, he turns to the left and walks 25 m straight. Again he turns to the left, walks a distance of 40 m straight again he turns to the left and walks a distance of 25 m. How far is he from starting point

(a) 30 m

(b) 35 m

(c) 40 m

(d) 50 m

23. In a row of boys facing the North, A is sixteenth from the left end and C is sixteenth from the right end. B, who is fourth to the right of A, is fifth to the left of C in the row. How many boys are there in the row?

(a) 39

(b) 40

(c) 41

(d) 42

24. Ram and Sham are ranked 13th and 14th respectively in a class of 23. What are their ranks from the last respectively?

(a) 10th; 11th

(b) 11th; 12th

(c) 11th ; 10th

(d) None of these

25. 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

(a) One

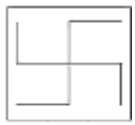
(b) Two

(c) Three

(d) Four

Direction (Q.26-27): In each of the following questions, four terms/words have been given, out of which three are alike in some manner and one is different. Choose the odd one out.

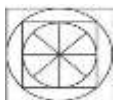
26. (a) Broad: Wide (b) Light:Heavy
(c) Tiny: Small (d) Big : Large
27. (a) VWY (b) QRT (c) LMO (d) JKL
28. If the first three letters of the word COMPREHENSION are reversed, then the last three letters are added and then the remaining letters are reversed and added, then which letter will be exactly in the middle. ?
(a) H (b) N (c) R (d) S
29. Arrange the given words in alphabetical order and choose the one that comes in the 2nd position.
(a) Restrict (b) Rocket (c) Robber (d) Random
30. In the following question, you are given a figure (X) followed by four alternative figures (a), (b), (c) and (d) such that fig. (X) is embeded in one of them. Trace out the alternative figure which contains fig. (X) as its part.



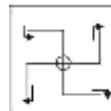
(X)



(a)



(c)



(b)



(d)

PHYSICS

31. Thermocole lined box is used as a cold storage because:
(a) Thermocole is a bad conductor (b) It is cheaper
(c) It is easier to construct (d) None of these
32. An ideal thermometer should have
(a) Small heat capacity (b) Large heat capacity
(c) Medium heat capacity (d) Variable heat capacity
33. The energy from the sun reaches the earth by
(a) Conduction (b) Radiation
(c) Convection (d) All the above
34. Beaker A contains hot water. Beaker B contains cold water. Beaker C contains a mixture of hot and cold water. If initially your hand is put into a beaker containing ice, then putting your hand in which of the beakers A, B or C will give a sensation of warmth?
(a) A (b) B
(c) C (d) All of the above.
35. A beggar wrapped himself with a few layers of newspaper on a cold winter night. This helped him to keep himself warm because
(a) Friction between the layers of newspaper produces heat.
(b) Air trapped between the layers of newspaper is a bad conductor of heat.
(c) Newspaper is a conductor of heat.
(d) Newspaper is at a higher temperature than the temperature of the surrounding.

36. All bodies radiate heat at all temperature except at
 (a) 0°C (b) 100°C
 (c) 0K (d) Absolute temperature
37. A boy running at an average speed of 4 km/hr reaches school from his home in $\frac{1}{2}\text{ hr}$. The distance of the school from his home is
 (a) 2 km (b) 8 km (c) 4 km (d) 6 km
38. Which one of the following is travelling with the fastest speed?
 (a) An athlete running with a speed of 10 m/s
 (b) A bicycle moving with a speed of 200 m/min
 (c) A tortoise covering 100 metres in 15 minutes
 (d) A motorcycle moving with a speed one km/h
39. A man runs 10 km in 30 min . What is his speed?
 (a) 5 km/h (b) 10 km/h (c) 15 km/h (d) 20 km/h
40. A boy cycles a distance of 640 m in 2 minutes and 40 seconds . What is the speed of the cycle?
 (a) 4 m/s (b) 8 m/s (c) 12 m/s (d) 16 m/s
41. With what speed should a bus travel so that it can cover a distance of 10 km in 5 min ?
 (a) 60 km/hr (b) 10 km/hr (c) 12 km/hr (d) 120 km/hr
42. How many seconds are there in 12 hours ?
 (a) 12 seconds (b) 720 seconds
 (c) 43200 seconds (d) None of these
43. Calculate the distance travelled by a man walking at a speed of 5 km/hr in 36 minutes .
 (a) 3 km (b) 4 km (c) 5 km (d) 6 km
44. The standard fixed point for temperature measurement is used these days is :
 (a) Melting point of ice at S.T.P.
 (b) That temperature at which ice, water and water vapour coexist
 (c) That temperature at which pure ice and pure water coexist
 (d) None of the above
45. The meter that is used to measure speed of a vehicle is :
 (a) Speedometer (b) Odometer
 (c) Anemometer (d) Thermometer

CHEMISTRY

46. Which of the following is an acid base indicator?
 (a) Vinegar (b) Lime water (c) Turmeric (d) Baking soda
47. Neutralization reaction is a:
 (a) Physical and reversible change. (b) Physical change that cannot be reversed.
 (c) Chemical and reversible change. (d) Chemical change that cannot be reversed.
48. Boojho appeared in class test where he wrote some statements but he confused to know the correct statement. Would you help him to know that?
 (a) Ants have formic acid in their sting, that is why stinging of ants become painful.
 (b) Getting relief from ant sting by rubbing baking soda.
 (c) Heat always evolves in neutralization, salt and water are also formed in neutralization.
 (d) All of the above.

49. When the soil is too basic, plants do not grow well in it. To improve its quality, what must be added to the soil?
- (a) Organic matter (b) Quick lime
(c) Slaked lime (d) Calamine solution
50. Consider the following Sentences and choose the correct Statements:
- (a) Tartaric acid present in unripe mangoes. (b) Formic acid present in ant sting.
(c) Lactic acid present in curd. (d) All the above.
51. Consider the following statements, choose the incorrect one:
- (a) Calamine can be used to treat ant's sting. (b) Lime water turns red litmus blue.
(c) Phenolphthalein is a natural indicator. (d) None of the above.
52. Which of the following colours is given by phenolphthalein in a basic salt solution.
- (a) yellow (b) pink (c) orange red (d) colourless
53. Acetic acid is found in
- (a) Curd (b) Spinach (c) Vinegar (d) Citrus fruits
54. Lactic acid is found in
- (a) Curd (b) Soap (c) Apple (d) Lime
55. Sodium hydroxide is found in
- (a) Lemon (b) Soap (c) Oil of Vitriol (d) Table Salt
56. Substances which are bitter in taste, feel soapy on touching are known as
- (a) Acids (b) Bases
(c) Indicators (d) Neutral solution
57. Special type of substances used to test whether a substance is acidic/basic are known as
- (a) Indicators (b) Acids (b) Bases (d) Salt
58. Which of the following is a strong acid?
- (a) Acetic acid (b) Nitric acid (c) Lactic acid (d) Citric acid
59. The most commonly used natural indicator 'Litmus' is extracted from
- (a) Lichens (b) Turmeric (c) Beet Root (d) China rose
60. What is the chemical name of baking soda?
- (a) Potassium hydrogen carbonate (b) Magnesium hydrogen carbonate
(c) Sodium hydrogen carbonate (d) None of the above

BIOLOGY

61. During adolescence, the sudden increase in height is primarily due to the elongation of bones in the:
- (a) Arms and legs (b) Skull and jaw
(c) Ribcage and chest (d) Fingers and toes
62. Which of the following is a male sex hormone responsible for secondary sexual characteristics like the growth of facial hair?
- (a) Estrogen (b) Testosterone
(c) Insulin (d) Adrenaline
63. The onset of puberty and the changes associated with it are fundamentally triggered and regulated by chemical substances called:
- (a) Enzymes (b) Vitamins
(c) Hormones (d) Nutrients

64. Which of the following raw materials is absorbed by plant roots from the soil to carry out photosynthesis?
- (a) Carbon dioxide (b) Water
(c) Oxygen (d) Chlorophyll
65. The chemical substance that traps solar energy inside a plant cell to initiate photosynthesis is:
- (a) Cytoplasm (b) Chlorophyll
(c) Cellulose (d) Starch
66. Which plant tissue acts like a network of pipes to conduct synthesized food from the leaves to other parts of the plant?
- (a) Xylem (b) Phloem
(c) Root hairs (d) Epidermis
67. The process by which plants lose water in the form of water vapor from their aerial parts is called:
- (a) Respiration (b) Transpiration
(c) Translocation (d) Photosynthesis
68. In autotrophic nutrition, plants convert light energy into which type of energy?
- (a) Chemical energy (b) Kinetic energy
(c) Heat energy (d) Electrical energy
69. Which of the following organs is responsible for filtering waste products out of the blood in the human excretory system?
- (a) Lungs (b) Heart
(c) Kidneys (d) Stomach
70. In human beings, the major site for the complete digestion of food and absorption of nutrients is the:
- (a) Stomach (b) Large intestine
(c) Small intestine (d) Oesophagus
71. Which component of human blood contains the iron-rich pigment hemoglobin that binds and transports oxygen?
- (a) White blood cells (b) Red blood cells
(c) Platelets (d) Plasma
72. Earthworms do not have lungs. Which part of their body do they use to exchange gases directly with the environment?
- (a) Moist skin (b) Gills
(c) Spiracles (d) Tracheae
73. Which blood vessels carry oxygen-rich blood away from the heart to all other parts of the body?
- (a) Veins (b) Arteries
(c) Capillaries (d) Valves
74. During heavy exercise, an accumulation of which substance in muscle cells causes painful muscle cramps?
- (a) Lactic acid (b) Alcohol
(c) Carbon dioxide (d) Water
75. What is the process of eliminating undigested solid food waste from the body called?
- (a) Egestion (b) Excretion
(c) Ingestion (d) Assimilation

MATHEMATICS

76. Which expression uses the associative law of multiplication?
(a) $7 \div 4 = 4 \div 7$ (b) $7 \times (4 + 5) = (7 \times 4) + (7 \times 5)$
(c) $7 + 4 - 5 = 7 + 5 - 4$ (d) $7 \times (4 \times 5) = (7 \times 4) \times 5$
77. What is the integer obtained by adding additive inverse of -53 to additive inverse of 35 ?
(a) -35 (b) -18 (c) 53 (d) 18
78. Which statement is correct?
(a) $(-a)(b + c) = -ab - ac$ (b) $(-a)(b - c) = ab - ac$
(c) $(a + b)(-c) = ac + bc$ (d) None of these
79. By which decimal number should 0.0001 be divided to get 0.01?
(a) 0.1 (b) 0.01 (c) 0.001 (d) None of these
80. If $6\frac{3}{4} \times 1.2 = 1.2 + 0.9 + 1.2 + 1.2 \times y$. Then find y
(a) 4 (b) 3 (c) 2 (d) 6
81. What is the value of $(p + q)$, if $p = (6.09 \div 0.7)$ and $q = (9.81 \div 0.3)$
(a) 41.40 (b) 31.30 (c) 35.50 (d) None of these
82. If five times a number increased by 2 equals 32, the number is ____.
(a) 8 (b) 10 (c) 6 (d) 5
83. Read the following statements carefully and select the correct option.
Statement-I: If $\frac{3(x-5)}{2} = 7 - \frac{x}{2}$, then the value of x is $\frac{-1}{3}$.
Statement-II: If $0.75(2t - 6) = 0.25(t - 8)$, then the value of t is 2 .
(a) Both Statement-I and Statement-II are true.
(b) Both Statement-I and Statement-II are false.
(c) Statement-I is false but Statement-II is true.
(d) Statement-I is true but Statement-II is false.
84. If we represent the fraction $\frac{5}{26}$ by $\frac{3x-1}{2x+5}$, then $x = ?$
(a) $\frac{3}{4}$ (b) $\frac{4}{3}$ (c) $\frac{3}{7}$ (d) $\frac{7}{3}$
85. Solve: $x(x + 5) = x^2 + x + 32$
(a) 2 (b) 4 (c) 6 (d) 8
86. Solve: $\frac{x-1}{3} - \frac{2x-3}{5} = 1$
(a) -11 (b) -15 (c) -8 (d) -10
87. Rajesh had some money. He gave one-fourth of it to his friend Rohit and still has Rs. 144 left with him. Find, how much money he had in the beginning.
(a) Rs. 200 (b) Rs. 576 (c) Rs. 192 (d) Rs. 642
88. A man is 26 years older than his son. After 10 years, he will be three times as old as his son. Find the present age of man.
(a) 29 years (b) 52 years (c) 60 years (d) 75 years
89. Find the difference between 6.85 and 0.685.
(a) 6.235 (b) 6.165 (c) 7.535 (d) 6.005
90. Find the value of 0.5 of $7.60 + 1.62$ of 30.
(a) 52.4 (b) 38.6 (c) 90.75 (d) 60
91. Evaluate: 0.12 of $(0.104 - 0.02) + 0.36 \times 0.5$
(a) 0.231 (b) 1.2406 (c) 0.19008 (d) None of these

92. Evaluate: $2\frac{1}{4} \div \frac{5}{7} \times 1\frac{1}{3}$
- (a) $\frac{15}{7}$ (b) 21 (c) 18 (d) $\frac{21}{5}$
93. Solve: $12\frac{1}{2} - \left[8\frac{1}{2} + \{9 - (5 - \overline{3 - 2})\}\right]$
- (a) 1 (b) 2 (c) -1 (d) -2
94. Solve: $8 - \left\{\frac{3}{2} + \left(\frac{3}{5} - \frac{1}{2}\right)\right\}$
- (a) 32 (b) 6.4 (c) 24 (d) 12.9
95. Subtract the sum of $\frac{1}{4}$ and $\frac{3}{8}$ from the sum of $\frac{2}{3}$, $\frac{3}{4}$ and $\frac{7}{12}$.
- (a) $\frac{5}{8}$ (b) 2 (c) $\frac{11}{8}$ (d) $\frac{2}{5}$
96. Find the number which on dividing by 23 gives quotient = 7 and remainder = 4.
- (a) 190 (b) 165 (c) 185 (d) 245
97. Following are the three statements. Exactly which ones are true?
- (i) 3^{10} is even (ii) 3^{10} is odd (iii) 3^{10} is square
- (a) (i) only (b) (ii) only (c) (iii) only (d) (ii) and (iii)
98. When exactly is the value of the product $\left(1 + \frac{1}{2}\right)\left(1 + \frac{1}{3}\right)\left(1 + \frac{1}{4}\right) \dots \left(1 + \frac{1}{n}\right)$ equal to an integer?
- (a) when n is odd (b) when n is even
- (c) when n is a multiple of 3 (d) always
99. Fill in the blank: $-2 \underline{\hspace{1cm}} - 8$
- (a) $>$ (b) $<$ (c) $=$ (d) None of these
100. How many 2 digits numbers formed out of the digits 4, 2 and 9, if repetition of digits is allowed.
- (a) 7 (b) 9 (c) 10 (d) 12