

RAISE 2020
(Reynott Academics and Intelligence Scholarship Examination)
SAMPLE PAPER
Class - 10th

Syllabus of the Test : Science & Mathematics of Class 9th

Time : 2 Hrs.

MM : 360

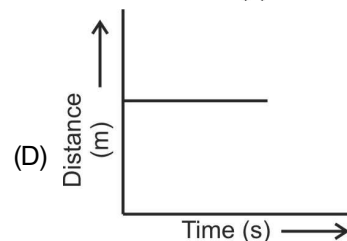
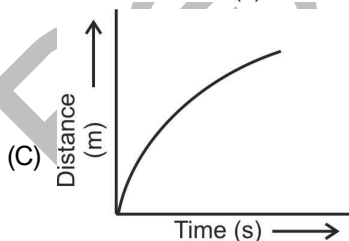
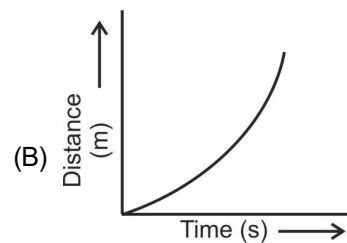
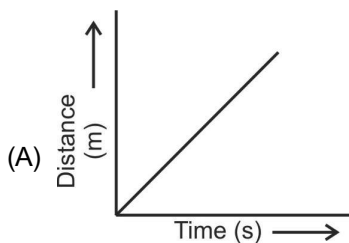
GENERAL INSTRUCTIONS :

- All questions are compulsory.
- Blank paper, clipboard, log tables, calculators, cellular phones and electronic gadgets in any form are not allowed inside the examination hall.
- Use only Black/Blue Ball Pen for filling the OMR. Do not use Gel/ Ink/ Felt pen as it might smudge the OMR.
- For each right answer you will be **awarded 4 marks** if you darken the bubble corresponding to the correct answer and zero marks if no bubble is darkened. In case of bubbling of incorrect answer, **NO NEGATIVE MARK** will be awarded.
- This Question Paper consists of 90 questions. Please check before starting to attempt. The question paper consists of five Sections, Section-A (Physics: 1 to 15), Section-B (Chemistry: 16 to 30), Section-C (Biology: 31 to 45), Section-D (Mathematics: 46 to 70), Section-E (Mental Ability: 71 to 90).

SECTION-A (PHYSICS)

- The gravitational force between two objects is F . If masses of both objects are halved without changing distance between them, then the gravitational force would become
(A) $F/4$ (B) $F/2$
(C) F (D) $2F$
- An object is put one by one in three liquids having different densities. The object floats with $\frac{1}{9}$, $\frac{2}{11}$ and $\frac{3}{7}$ parts of their volumes outside the liquid surface in liquids of densities d_1 , d_2 and d_3 respectively. Which of the following statement is correct?
(A) $d_1 > d_2 > d_3$ (B) $d_1 > d_2 < d_3$
(C) $d_1 < d_2 > d_3$ (D) $d_1 < d_2 < d_3$
- The value of quantity G in the law of gravitation
(A) depends on mass of earth only (B) depends on radius of earth only
(C) depends on both mass and radius of earth (D) is independent of mass and radius of the earth
- The atmosphere is held to the earth by
(A) gravity (B) wind
(C) clouds (D) earth's magnetic field
- The weight of an object at the centre of the earth of radius R is
(A) zero
(B) infinite
(C) R times the weight at the surface of the earth
(D) $1/R^2$ times the weight at surface of the earth

6. An apple falls from a tree because of gravitational attraction between the earth and apple. If F_1 is the magnitude of force exerted by the earth on the apple and F_2 is the magnitude of force exerted by apple on earth, then
- (A) F_1 is very much greater than F_2 (B) F_2 is very much greater than F_1
 (C) F_1 is only a little greater than F_2 (D) F_1 and F_2 are equal
7. According to the third law of motion, action and reaction
- (A) always act on the same body
 (B) always act on different bodies in opposite directions
 (C) have same magnitude and directions
 (D) act on either body at normal to each other
8. A passenger in a moving train tosses a coin which falls behind him. It means that motion of the train is
- (A) accelerated (B) uniform
 (C) retarded (D) along circular tracks
9. An object of mass 2 kg is sliding with a constant velocity of 4 m s^{-1} on a frictionless horizontal table. The force required to keep the object moving with the same velocity is
- (A) 32 N (B) 0 N
 (C) 2 N (D) 8 N
10. Rocket works on the principle of conservation of
- (A) mass (B) energy
 (C) momentum (D) velocity
11. A water tanker filled up to $\frac{2}{3}$ of its height is moving with a uniform speed. On sudden application of the brake, the water in the tank would
- (A) move backward (B) move forward
 (C) be unaffected (D) rise upwards
12. The numerical ratio of displacement to distance for a moving object is
- (A) always less than 1 (B) always equal to 1
 (C) always more than 1 (D) equal or less than 1
13. Which of the following figures represents uniform motion of a moving object correctly?



14. In which of the following cases of motions, the distance moved and the magnitude of displacement are equal?
- (A) If the car is moving on straight road (B) If the car is moving in circular path
 (C) The pendulum is moving to and fro (D) The earth is revolving around the Sun
15. Suppose a boy is enjoying a ride on a merry-go-round which is moving with a constant speed of 10 m s^{-1} . It implies that the boy is
- (A) at rest (B) moving with no acceleration
 (C) in accelerated motion (D) moving with uniform velocity

SECTION-B (CHEMISTRY)

16. On increasing the temperature of the liquid the rate of evaporation is
(A) Increase (B) Decreases
(C) No change (D) None of these
17. Name the process by which a drop of ink spreads in a beaker of water
(A) Diffusion (B) Vaporization
(C) Condensation (D) Sublimation
18. Match the following and choose the correct answer
(i) Solid (a) Super energetic particles
(ii) Liquid (b) No shape nor fixed volume at a given pressure
(iii) Gas (c) Has definite shape
(iv) Plasma (d) Define shape with less molecular forces than that in solids
(A) (i) – a, (ii) – b, (iii) – c, (iv) – d (B) (i) – c, (ii) – d, (iii) – b, (iv) – a
(C) (i) – c, (ii) – d, (iii) – a, (iv) – b (D) (i) – a, (ii) – d, (iii) – b, (iv) – c
19. The temperature at which Celsius and Fahrenheit scales show the same reading is
(A) 40° K (B) 100° F
(C) – 40° C (D) – 100°C
20. Latent heat of fusion for ice is
(A) 80 gm cal⁻¹ (B) 80 cal/gm
(C) 19 J cal⁻¹ (D) None of these
21. The zig-zag movement of dispersed phase particle in a colloidal system is known as
(A) Transitional motion (B) Circular motion
(C) Linear motion (D) Brownian motion
22. Milk is:
(A) Fat dispersed in water (B) Fat dispersed in milk
(C) Fat dispersed in fat (D) Water dispersed in milk
23. Tyndall effect is observed in
(A) Solution (B) Precipitate
(C) Sol (D) Vapour
24. Milk of Magnesia is an example of
(A) Emulsion (B) True solution
(C) Colloid (D) Suspension
25. Which of the following is not a pure substance
(A) Mercury (B) Sugar
(C) Blood (D) Salt
26. Which of the following is not a chemical change
(A) Electrolysis of water
(B) Boiling of water
(C) Digestion of food
(D) Burning of magnesium ribbon in oxygen to form magnesium oxide.
27. Which of the following statements is not true
(A) True solutions are homogeneous in nature
(B) Suspensions are heterogeneous in nature
(C) Solute particles in a colloidal solution can be separated by filtration
(D) True solutions are transparent to light

28. Which of the following is the second most abundant metal in the earth's crust?
(A) Copper (B) Aluminium
(C) Iron (D) Zinc
29. Camphor can be purified by
(A) Distillation (B) Filtration
(C) Sedimentation (D) Sublimation
30. Which of the following will show Tyndall effect
(A) Starch solution (B) Sodium chloride solution
(C) Copper sulphate solution (D) Sugar solution

SECTION-C (BIOLOGY)

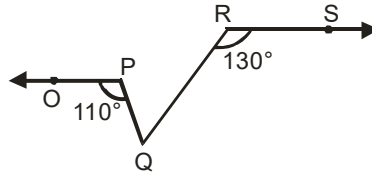
31. The vacuole is lined by a membrane called
(A) Tonoplast (B) Jacket
(C) Cell membrane (D) Tonoplasm
32. Cell drinking is
(A) Exocytosis (B) Pinocytosis
(C) Phagocytosis (D) None of these
33. Cristae are associated with
(A) Endoplasmic reticulum (B) Mitochondria
(C) Cytoplasm (D) Protoplasm
34. Site of protein synthesis is
(A) Ribosome (B) SER
(C) Golgi body (D) Lysosome
35. A cell swells up when kept in
(A) Isotonic solution (B) Hypertonic solution
(C) Hypotonic solution (D) Any of these
36. Cell theory was proposed by
(A) Virchow (B) Schleiden and schwann
(C) Robert Hooke (D) B. Mc Clintock
37. The largest subunit of prokaryotic ribosomes is
(A) 30 S (B) 40 S
(C) 50 S (D) 60 S
38. A cell when kept in sugar solution, gets dehydrated. Then the solution is
(A) Hypotonic (B) Hypertonic
(C) Isotonic (D) None of these
39. Powerhouse of the cell is
(A) Golgi bodies (B) Mitochondria
(C) Ribosomes (D) Endoplasmic reticulum
40. Which of the following cell organelles stores hydrolytic enzymes?
(A) Centrioles (B) Lysosomes
(C) Chromoplasts (D) Chloroplasts

41. An elaborate network of filamentous proteinaceous structures present in the cytoplasm which helps in the maintenance of cell shape is called
- (A) Thylakoids (B) Endoplasmic reticulum
(C) Plasmalemma (D) Cytoskeleton
42. Digestive enzymes hydrolases are present in
- (A) Vacuole (B) Lysosomes
(C) Golgi bodies (D) Mitochondria
43. Present in nucleus is
- (A) Golgi complex (B) Lysosome
(C) Mitochondria (D) Chromosome
44. Which of the following part of a neuron is covered by fatty sheath?
- (A) Axon (B) Cyton
(C) Dendrite (D) None of these
45. Heparin is secreted by
- (A) Kidney cells (B) Blood cells
(C) Bone marrow (D) Liver cells

SECTION-D (MATHEMATICS)

46. Every rational number is
- (A) a natural number (B) an integer
(C) a real number (D) a whole number
47. Which of the following is irrational?
- (A) $\sqrt{\frac{4}{9}}$ (B) $\sqrt{\frac{12}{3}}$
(C) $\sqrt{7}$ (D) $\sqrt{81}$
48. $\sqrt{10} \times \sqrt{15}$ is equal to
- (A) $6\sqrt{5}$ (B) $5\sqrt{6}$
(C) $\sqrt{25}$ (D) $10\sqrt{5}$
49. Degree of the polynomial $4x^4 + 0x^3 + 0x^5 + 5x + 7$ is
- (A) 4 (B) 5
(C) 3 (D) 7
50. $x + 1$ is a factor of the polynomial
- (A) $x^3 + x^2 - x + 1$ (B) $x^3 + x^2 + x + 1$
(C) $x^4 + x^3 + x^2 + 1$ (D) $x^4 + 3x^3 + 3x^2 + x + 1$
51. One of the factors of $(25x^2 - 1) + (1 + 5x)^2$ is
- (A) $5 + x$ (B) $5 - x$
(C) $5x - 1$ (D) $10x$
52. The angles of a triangle are in the ratio 5 : 3 : 7. The triangle is
- (A) an acute angled triangle (B) an obtuse angled triangle
(C) a right triangle (D) an isosceles triangle

53. In the Figure, if $OP \parallel RS$, $\angle OPQ = 110^\circ$ and $\angle QRS = 130^\circ$, then $\angle PQR$ is equal to



- (A) 40° (B) 50°
 (C) 60° (D) 70°
54. In $\triangle ABC$, $BC = AB$ and $\angle B = 80^\circ$. Then $\angle A$ is equal to
 (A) 80° (B) 40°
 (C) 50° (D) 100°
55. In $\triangle PQR$, if $\angle R > \angle Q$, then
 (A) $QR > PR$ (B) $PQ > PR$
 (C) $PQ < PR$ (D) $QR < PR$
56. Which of the following is not a criterion for congruence of triangles?
 (A) SAS (B) ASA
 (C) SSA (D) SSS
57. The median of a triangle divides it into two
 (A) triangles of equal area (B) congruent triangles
 (C) right triangles (D) isosceles triangles
58. An isosceles right triangle has area 8 cm^2 . The length of its hypotenuse is
 (A) $\sqrt{32} \text{ cm}$ (B) $\sqrt{16} \text{ cm}$
 (C) $\sqrt{48} \text{ cm}$ (D) $\sqrt{24} \text{ cm}$
59. What is the area of an equilateral triangle with side 2 cm ?
 (A) $\sqrt{6} \text{ cm}^2$ (B) $\sqrt{3} \text{ cm}^2$
 (C) $\sqrt{8} \text{ cm}^2$ (D) 4 cm^2
60. What is the length of each side of an equilateral triangle having an area of $4\sqrt{3} \text{ cm}^2$?
 (A) 4 cm (B) 5 cm
 (C) 5 cm (D) 6 cm
61. What is the measure of an angle whose measure is 32° less than its supplement?
 (A) 148° (B) 60°
 (C) 74° (D) 55°
62. If the supplement of an angle is 4 times of its complement, find the angle.
 (A) 60° (B) 50°
 (C) 80° (D) 100°
63. From the choices given below mark the co-prime numbers
 (A) 2, 3 (B) 2, 4
 (C) 2, 6 (D) 2, 110

64. A rational number equivalent to $\frac{5}{7}$ is
- (A) $\frac{15}{17}$ (B) $\frac{25}{27}$
(C) $\frac{10}{14}$ (D) $\frac{10}{27}$
65. An example of a whole number is
- (A) 0 (B) $-\frac{1}{2}$
(C) $\frac{11}{5}$ (D) -7
66. Which one is not a polynomial
- (A) $4x^2 + 2x - 1$ (B) $y + \frac{3}{y}$
(C) $x^3 - 1$ (D) $y^2 + 5y + 1$
67. The polynomial $px^2 + qx + rx^4 + 5$ is of type
- (A) linear (B) quadratic
(C) cubic (D) Biquadratic
68. Identify the polynomial
- (A) $x^{-2} + x^{-1} + 5$ (B) $x^2 + 5\sqrt{x} + 7$
(C) $\frac{1}{x^3} + 7$ (D) $3x^2 + 7$
69. The zero of the polynomial $p(x) = 2x + 5$ is
- (A) 2 (B) 5
(C) $\frac{2}{5}$ (D) $-\frac{5}{2}$
70. The number of zeros of $x^2 + 4x + 2$
- (A) 1 (B) 2
(C) 3 (D) None of these

SECTION-E (MENTAL ABILITY)

Direction (Q. 71 to Q. 75): Find the missing number in the following series

71. 5, 11, 17,, 29, 41.
(A) 19 (B) 21
(C) 23 (D) 25
72. 1, 3, 6, 10, 15, 28, 36.
(A) 20 (B) 21
(C) 23 (D) 24
73. 10, 2, 20, 3, 30, 4,
(A) 40 (B) 50
(C) 60 (D) 70
74. 24, 6, 48, 12, 96, 24,
(A) 191 (B) 192
(C) 193 (D) 194

75. 1, 3, 9, 27, 81, 243,.....

(A) 729

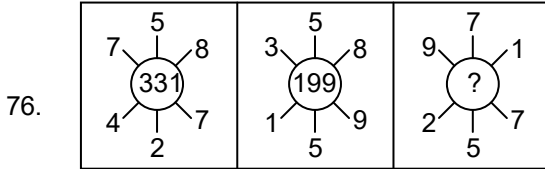
(B) 730

(C) 731

(D) 732

Directions (Q. 76 & Q. 77):

In these questions some figures are given. These numbers follow a certain system. One such number is missing. Find out the number from the given choices.

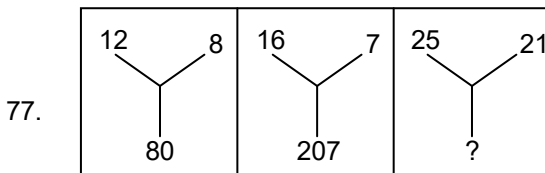


(A) 280

(B) 841

(C) 653

(D) 714



(A) 425

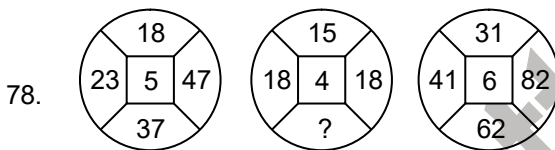
(B) 241

(C) 210

(D) 184

Direction (Q. 78):

In questions 35 to 39 the number inside the small square is related some way to the numbers outside it. Identify the relationship and indicate your answer on your answer sheet by encircling the appropriate letter.



(A) 13

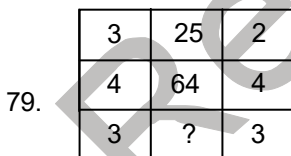
(B) 15

(C) 17

(D) 14

Directions (Q. 79 & Q. 80):

In question 79 to 80 numbers are placed in the figure on the basis of some rules. One place in the figure is indicated by (?). Find out the correct alternative to replace the question mark and encircle its number against the proper question number.

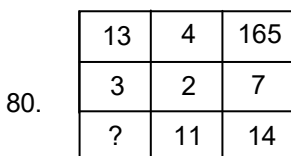


(A) 81

(B) 6

(C) 39

(D) 36



(A) 25

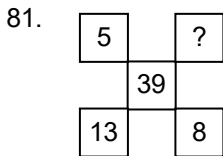
(B) 7

(C) 5

(D) 2

Directions (Q. 81):

Numbers in the following questions have been arranged using a particular method. Find the number in place of “?”



- (A) 40 (B) 52
(C) 65 (D) 75

Directions : (Q. 82 to Q. 85)

Read the information carefully and answer the questions based on it.

- (i) Six flats on a floor in two rows facing north and south are allotted to P, Q, R, S, T and U.
(ii) Q gets a north facing flat and is not next to S.
(iii) S and U get diagonally opposite flats.
(iv) R next to U, gets a south facing flat and T gets a north facing flat.
82. Whose flat is between Q and S?
(A) T (B) U
(C) R (D) P
83. The flats of which of the other pairs than SU, is diagonally opposite to each other ?
(A) PT (B) QP
(C) QR (D) TS
84. If the flats of T and P are interchanged, whose flat will be next to that of U ?
(A) Q (B) T
(C) P (D) R
85. Which of the combinations get south facing flats ?
(A) URP (B) UPT
(C) QTS (D) Data inadequate
86. There are six houses in a row. Mr. Lal has Mr. Bhasin and Mr. Sachdeva as neighbours. Mr. Bhatia has Mr. Gupta and Mr. Sharma as neighbours. Mr. Gupta's house is not next to Mr. Bhasin or Mr. Sachdeva and Mr. Sharma does not live next to Mr. Sachdeva. Who are Mr. Bhasin's next door neighbour ?
(A) Mr. Lal and Mr. Bhasin (B) Mr. Lal and Mr. Sachdeva
(C) Mr. Sharma and Mr. Lal (D) Only Mr. Lal

Directions : (Q. 88 to Q. 90)

Six persons P, Q, R, S, T and U are sitting in a circle facing on another front to front. P is sitting in front of Q. Q is sitting to the right of T and left of R. P is to the left of U and right of S.

87. Who is sitting opposite to R ?
(A) P (B) Q
(C) S (D) U
88. Who is sitting opposite to S ?
(A) U (B) T
(C) R (D) can't be determined
89. Who is sitting between P and R ?
(A) S (B) T
(C) U (D) Q
90. If the positions of P and R are changed, who will be sitting between S and U?
(A) P (B) R
(C) Q (D) T





Branch Office : 265-A, Lajpat Nagar, Opp. Mission Hospital, Jalandhar

RAISE 2020

(Reynott Academics and Intelligence Scholarship Examination)

SAMPLE PAPER

Class - 10th

ANSWER KEY

- | | | | | |
|---------|---------|---------|---------|---------|
| 1. (A) | 19. (C) | 37. (C) | 55. (B) | 73. (A) |
| 2. (D) | 20. (B) | 38. (B) | 56. (C) | 74. (B) |
| 3. (D) | 21. (D) | 39. (B) | 57. (A) | 75. (A) |
| 4. (A) | 22. (A) | 40. (B) | 58. (A) | 76. (D) |
| 5. (A) | 23. (C) | 41. (D) | 59. (B) | 77. (D) |
| 6. (D) | 24. (D) | 42. (B) | 60. (A) | 78. (A) |
| 7. (B) | 25. (C) | 43. (D) | 61. (C) | 79. (D) |
| 8. (A) | 26. (B) | 44. (A) | 62. (A) | 80. (C) |
| 9. (B) | 27. (C) | 45. (D) | 63. (A) | 81. (B) |
| 10. (C) | 28. (C) | 46. (C) | 64. (C) | 82. (A) |
| 11. (B) | 29. (D) | 47. (C) | 65. (A) | 83. (B) |
| 12. (D) | 30. (A) | 48. (B) | 66. (B) | 84. (D) |
| 13. (A) | 31. (A) | 49. (A) | 67. (D) | 85. (A) |
| 14. (A) | 32. (B) | 50. (B) | 68. (D) | 86. (C) |
| 15. (C) | 33. (B) | 51. (D) | 69. (D) | 87. (D) |
| 16. (A) | 34. (A) | 52. (A) | 70. (B) | 88. (B) |
| 17. (A) | 35. (C) | 53. (C) | 71. (C) | 89. (A) |
| 18. (B) | 36. (B) | 54. (C) | 72. (B) | 90. (B) |

