Sample Questions

for

ASAT

(ALLEN Scholarship Cum Admission Test)

CLASSROOM CONTACT PROGRAMME

PRE-NURTURE & CAREER FOUNDATION : CLASS-IX

(FOR VIII to IX MOVING STUDENTS)

Things NOT ALLOWED in EXAM HALL : Blank Paper, clipboard, log table, slide rule, calculator, camera, mobile and any electronic or electrical gadget. If you are carrying any of these then keep them at a place specified by invigilator at your own risk

1. This booklet is your Question Paper. **DO NOT** break seal of Booklet until the invigilator instructs to do so.

2. Fill your Form No. in the space provided on the top of this page.

3. The Answer Sheet is provided to you separately which is a machine readable Optical Response Sheet (ORS). You have to mark your answers in the ORS by darkening bubble, as per your answer choice, by using black & blue ball point pen.

4. Total Questions to be Attempted 80. Part-I : 20 Questions & Part-II : 60 Questions.

5. After breaking the Question Paper seal, check the following:

   a. There are **14 pages** in the booklet containing question no. 1 to 80 under 2 Parts i.e. Part-I & Part-II.

   b. Part-I contains total 20 questions of IQ (Mental Ability).

   c. Part-II contains total 60 questions under 4 sections which are - Section (A) : Physics, Section (B) : Chemistry, Section(C) : Biology & Section (D): Mathematics.

6. Marking Scheme:

   a. If darkened bubble is RIGHT answer : **4 Marks**.

   b. If no bubble is darkened in any question: **No Mark**.

   c. **Only for part - II :** If darkened bubble is WRONG answer: **-1 Mark (Minus One Mark)**.

7. Think wisely before darkening bubble as there is negative marking for wrong answer.

8. If you are found involved in cheating or disturbing others then your ORS will be cancelled.

9. Do not put any stain on ORS and hand it over back properly to the invigilator.

PART-I

IQ (MENTAL ABILITY)

This section contains **20 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

1. In the question, you are given a combination of letters followed by four alternatives (1), (2), (3) and (4). Choose the alternative which most closely resembles the water-image of the given combination.

   QUARREL

   (1) ÓNVBBEL   (2) ⅃ƎЯЯAUꝹ

   (3) ꝹUVBBEL   (4) ⅃ƎЯЯAUꝹ

2. In the question, you are given a figure (x) followed by four figures (1), (2), (3) and (4) such that (X) is embedded in one of them. Trace out the correct alternative.

   (x)   (1)   (2)   (3)   (4)
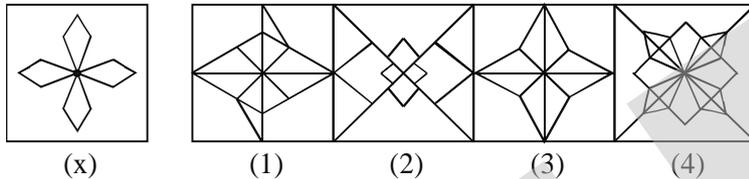
3. The next term in the sequence 1, 3, 6, 11, 20, 37, ?

   (1) 65   (2) 67

   (3) 70   (4) 60

4. If a certain code PERINATH is written as QFQHOBSG and POLE as QPKD, how will SYNDROME be written in that code ?

   (1) RXONQNNF   (2) TZODQNLD

   (3) TZMCSPKD   (4) TZMCSPLD

5. In the following question, there are two numbers to the left of the sign : : which are connected in some way. The same relationship is between the third number and one of the four alternatives given. Find the correct alternative.

   11 : 17 : : 19 : ?

   (1) 29   (2) 27

   (3) 23   (4) 21

6. Anshul moves towards East a distance of 5 m, then he turns to his left and walks 20 metres, then again he turns left and walks 15 meters. Now he turns 45° towards his right and goes straight to cover $20\sqrt{2}$ m meters. How far is he from his starting point ?

   (1) 40 m   (2) 30 m

   (3) 50 m   (4) 55 m

7. Count each 1 in the following sequence of numbers that is immediately followed by 2, if 2 is not immediately followed by 3. How many such 1's are there ?

1 2 1 3 4 5 1 2 3 5 2 1 2 6 1 4 5 1 1 2 4 1 2 3 2 1 7 5 2 1 2 5

(1) 2　　　　　　　　(2) 4　　　　　　　　(3) 5　　　　　　　　(4) 7

8. In the following question consists of two sets of figures. Figures A, B, C and D constitute the Problem Set while figures 1, 2, 3 and 4 constitute the Answer Set. There is a definite relationship between figures A and B. Establish a similar relationship between figures C and D by choosing a suitable figure (D) from the Answer Set.

Problem Set	Answer Set
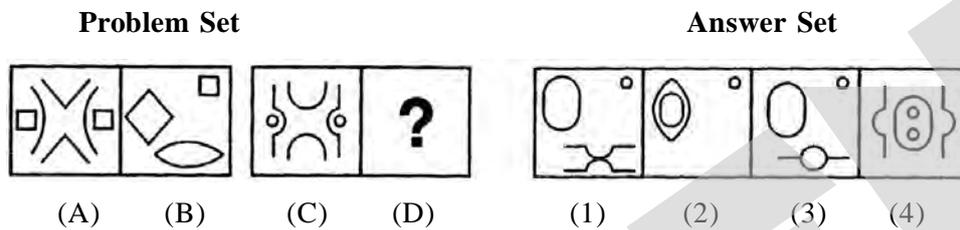
9. In a certain code STATION is denoted by URCRKMP then BRING is denoted in the same code by

(1) CSKLH　　　　　　　　　　　(2) DSGLH

(3) KSKPH　　　　　　　　　　　(4) None of these

10. If at 12'O clock, minute hand and hour hand are facing towards North, then in which direction the minute hand is facing at 4 : 40 ?

(1) 30° West of South　　　　　　　(2) 60° West of South

(3) 30° East of South　　　　　　　(4) 60° East of South

11. In the following question consists of two sets of figures. Figures A, B, C and D constitute the Problem Set while figures 1, 2, 3 and 4 constitute the Answer Set. There is a definite relationship between figures A and B. Establish a similar relationship between figures C and D by choosing a suitable figure (D) from the Answer Set.
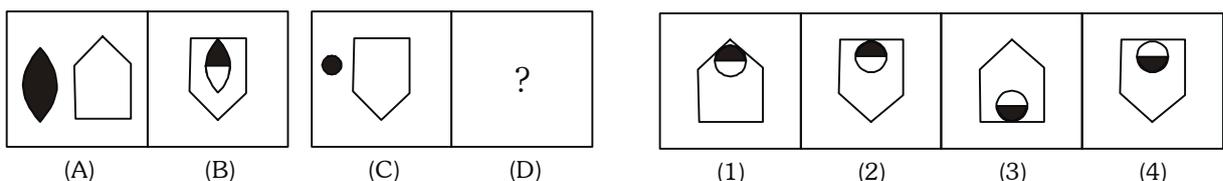
12. In the given question, a part of the figure is missing. Find out from the given options (1, 2, 3, 4) the right figure to fit in the missing figure.

(X)   (1)   (2)   (3)   (4)
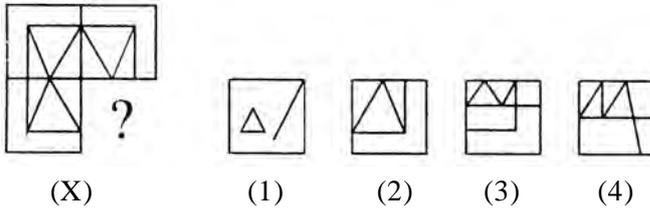
13. If 2 + 2 = 8, 3 + 5 = 24, 2 + 5 = 14, 3 + 4 = 21 then 5 + 7 is:

(1) 50

(2) 60

(3) 70

(4) 80

14. At 5'O clock, the hour hand of a wrist watch is towards North direction, find the direction of the minute hand at 7 : 17 : 30.

(1) West

(2) North – East

(3) North – West

(4) South - West

15. Find the missing term (?)

$$11\frac{1}{9}, 12\frac{1}{2}, 14\frac{2}{7}, 16\frac{2}{3}, ?$$

(1) $8\frac{1}{3}$

(2) $19\frac{1}{2}$

(3) 20

(4) $22\frac{1}{3}$

16. Which number should come in place of question mark (?)

7	2		9	1		5	–2
42	3		18	2		?	–3
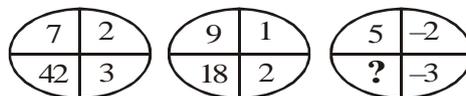
(1) 18   (2) 13   (3) 30   (4) –30

17. If each vowel of the word WEBPAGE is substituted with next letter of the English alphabetical series, and each consonant is substituted with the letter preceding it, which of the following letters will appear thrice ?

(1) G   (2) F   (3) Q   (4) V

18.

    (1)   (2)   (3)   (4)
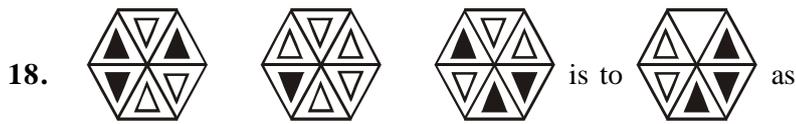
19. How many numbers amongst the numbers 9 to 54 are there which are exactly divisible by 9 but not by 3?

    (1) 8   (2) 6   (3) 5   (4) Nil

20. In the question given below, use the following notations:

    A"B means 'add B to A'

    A'B means 'subtract B from A'.

    A @ B means 'divide A by B'.

    A * B means 'multiply A by B'.

    Now, answer the following question.

    The time taken by two running trains in crossing each other is calculated by dividing the sum of the lengths of two trains by the total speed of the two trains. If the length of the first train is L_1, the length of the second train is L_2, the speed of the first train is V_1 and the speed of the second trains is V_2, which of the following expressions would represent the time taken?

    (1) $(L_1" L_2)* (V_1"V_2)$

    (2) $(L_1"L_2) @ (V_1"V_2)$

    (3) $[(L_1"L_2)@(V_1"V_2)]*60$

    (4) $(L_1 ' L_2) @ (V_1'V_2)$

PART-II

SECTION-A : PHYSICS

This section contains **15 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

21. A boy is sitting in a train looking out the window at another train a few feet away. Both trains have stopped at a station. Slowly, one of the trains starts to move, but the boy cannot tell if it is his train or the other one. What can he do to tell which train is moving?

    (1) Close his eyes.

    (2) See if a coin falls straight down.

    (3) Look at the ground outside.

    (4) Look at the seat across the aisle.

22. The displacement-time graph of a body is shown in the figure below.
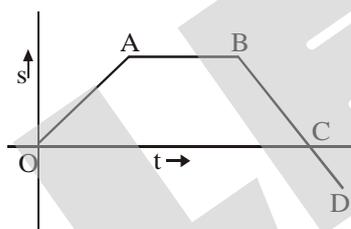
    The part of the graph that represents the body at rest is

    (1) OA   (2) AB   (3) BC   (4) CD

23. A 350 m long train passes over a 250 m long bridge at a speed of 54 km/h. How long will it take to cross the bridge?

    (1) 40 minutes   (2) 2/3 second

    (3) 2/3 hr   (4) 1/90 hr

24. The following forces act on an object: 13.5 N towards West, 21.2 N towards East, 33.0 N towards East, and 25.3 N towards West. Calculate the net force acting on the object.

    (1) 15.4 N towards West   (2) 15.4 N towards East

    (3) 23.6 N towards West   (4) 23.6 N towards East

25. How could you decrease the pressure exerted on the bottom of a glass of water?

    (1) By pouring more water into the glass

    (2) By putting the glass on a large surface area

    (3) By putting the glass on a small surface area

    (4) By drinking some of the water

26. In these two pictures, where is the water pressure the greatest?
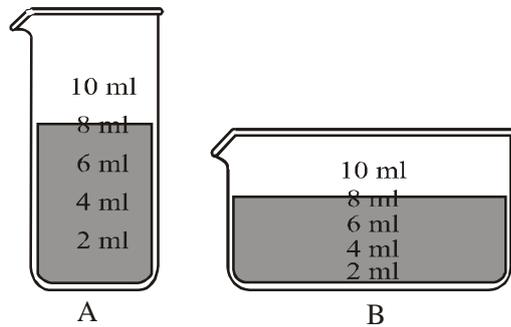
(1) The bottom of beaker A   (2) The bottom of beaker B

(3) The top of beaker A   (4) The top of beaker B

27. Two sounds of same pitch and loudness may differ in their

(1) Amplitudes of waves   (2) Frequencies of waves

(3) Shapes of waves   (4) Both 1 and 2

28. Sound waves generated by two sources A and B are shown by the graphs.
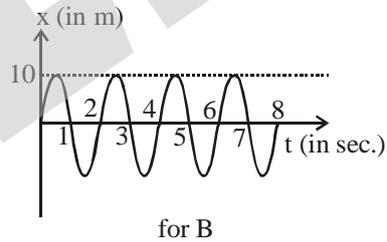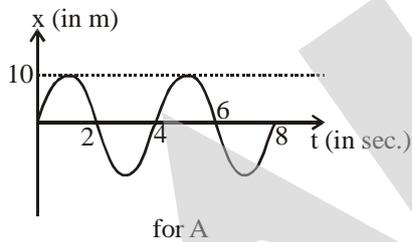
(1) Pitch of A is higher than pitch of B.

(2) Pitch of B is higher than pitch of A.

(3) Pitch of A and B is same.

(4) Information is insufficient to comment on pitch.

29. Which of these types of image is possible with a diverging mirror?

(1) a real image that is smaller than the object   (2) an upside-down image

(3) a virtual image larger than the object   (4) a virtual image smaller than the object

30. An incident ray of light is initially normal to the surface of a plane mirror. The mirror is rotated until the angle between the incident and reflected rays is 30°. The mirror has been rotated through an angle of

(1) 7.5°   (2) 15°   (3) 30°   (4) 45°

**Comprehension for (Q.No.31 to Q.No.33)**

Study the graph given below and answer the questions that follow:
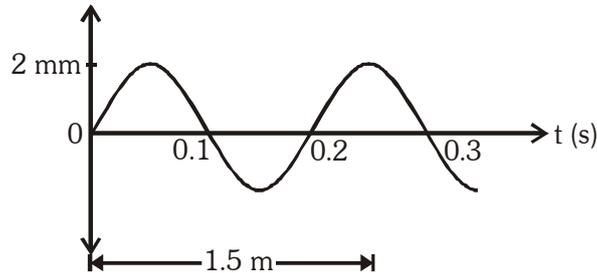
31. Frequency of the wave is:

(1) 0.1 Hz   (2) 10 Hz   (3) 5 Hz   (4) 20 Hz

32. Amplitude of the wave is:

(1) 0.2 m   (2) 0.02 m   (3) 0.002 m   (4) 0.004 m

33. Speed of the wave is:

(1) 5 m/s   (2) 10 m/s   (3) 2.5 m/s   (4) 1 m/s

Comprehension for (Q.No.34 to Q.No.35)

The speed of periodic wave motion is related to the frequency and wavelength of the waves. We can understand this by considering the simple case of water waves. Imagine that we fix our eyes on a stationary point on the surface of water and observe the waves passing by this point. We can measure how much time passes between the arrival of one crest and the arrival of the next one (the period), and also observe the distance between two consecutive crests (the wavelength). We know that speed is defined as distance divided by time. In this case, the distance is one wavelength and the time is one period, so wave speed = wavelength/period.

Since period is equal to the inverse of frequency, the formula can also be written as Wave speed = wavelength × frequency

This relationship holds true for all kinds of waves, whether they are water waves, sound waves, or light waves.

34. If a train of length 63 m having 7 freight cars rolls by you at the rate of three cars each second, what is the speed of the train?

(1) 6 m/s   (2) 7 m/s   (3) 21 m/s   (4) 42 m/s

35. Suppose a sound wave and an light wave have the same frequency. Which has the longer wavelength?

(1) Sound wave   (2) Light Wave

(3) Both have same wavelength   (4) Data insufficient

SECTION-B : CHEMISTRY

This section contains **15 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

36. Which metal is stored in kerosene oil ?

(1) Na   (2) Mg   (3) Ca   (4) None of these

37. Strong acid+Weak base $\longrightarrow$ Y+ H_2O+Heat the substance Y is

(1) Neutral salt   (2) Basic salt

(3) Acidic salt   (4) Double salt

38. Electrolysis of water is

(1) Physical change   (2) Chemical change

(3) Both 1 and 2   (4) None of these

39. To study the decreasing order of reactivity of metals an experiment is done by adding different metals to the aqueous solution of various salts.

From the data observed , the decreasing order of reactivity of metals is

Metal	$ZnSO_{4(aq)}$	$FeSO_{4(aq)}$	$CuSO_{4(aq)}$	$Al_2(SO_4)_{3(aq)}$
Zn	—	Displaced	Displaced	No reaction
Fe	No reaction	—	Displaced	No reaction
Cu	No reaction	No reaction	—	No reaction
Al	Displaced	Displaced	Displaced	—

(1) Al > Cu > Fe > Zn   (2) Al > Zn > Fe > Cu

(3) Al > Zn > Cu > Fe   (4) Al > Fe > Cu > Zn.

40. Which gas is evolved when potassium carbonate is treated with dilute HCl?

(1) Hydrogen (H_2)   (2) Sulphur dioxide (SO_2)

(3) Carbon monoxide (CO)   (4) Carbon dioxide (CO_2)

41. Column (I) contains inorganic compounds and column (II) contains their uses.

Column (I)   **Column (II)**

(i) SO_2 (a)   In cold drinks

(ii) CO_2 (b)   In glass formation

(iii) CaO   (c)   As bleaching agent in sugar industry

	(i)	(ii)	(iii)
(1)	b	a	c
(2)	a	b	c
(3)	c	a	b
(4)	c	b	a

42. In which of the following cases will the mass of the substance changes ?

(1) The freezing of water   (2) The burning of wood

(3) The glowing of an electric bulb   (4) The melting of ice

43. Two samples X and Y are tested with various indicators. The observations are listed in the following table.

Sample	Phenolphthalein	Methyl orange
X	Colourless	Red
Y	Light pink	Yellow

What are samples X and Y ?

(1) X is HCl and Y is NaOH

(2) X is NaOH and Y is HCl

(3) X is NaOH and Y is KOH

(4) X is HCl and Y is HNO_3

44. Fill in the blanks by choosing the option with correct words.

The process of rusting is _____ change. For rusting, both _____ and _____ are required. The salts present in sea water make the process of rusting _____

(1) Chemical, Air, Water, Faster

(2) Physical, Air, Water, Slower

(3) Chemical, Air, Water, Slower

(4) Physical, Air, Water, Faster

45. Study the given table carefully.

	Substances	Blue litmus solution	Phenolphthalein	Methyl orange	China rose indicator
1	Wasp's sting	Red	Colourless	Red	Red
2	Lime water	No change	Pink	Yellow	Green
3	Spinach	No change	Pink	Yellow	Green
4	Window cleaner	Red	Colourless	Red	Red
5	Curd	Red	Colourless	Red	Red

Which of them shows the incorrect change in the colour of indicators?

(1) 1 and 2   (2) 3 and 5

(3) 1, 2 and 3   (4) 1, 3 and 4

Comprehension for (Q.No.46 to Q.No.48)

Though Most metals undergo similar kind of reactions. The "vigour" with which they react is not the same. Some are more reactive than others. Metals along which hydrogen are arranged in order of their reactivity in a series called activity series.

46. Which of the following is most reactive

(1) Sodium   (2) Potassium   (3) Calcium   (4) Magnesium

47. Which of the following can displace Iron from $FeSO_4$ solution ?

(1) Zinc   (2) Copper   (3) Silver   (4) None of these

48. Coke is

(1) almost pure form of carbon

(2) used in the manufacture of steel

(3) obtained during destructive distillation of coal

(4) all are correct

Comprehension for (Q.No.49 & Q.No.50)

The substance which vapourise during burning, gives flames. For example, kerosene oil and molten wax rise through the wick and are vapourised during burning and form flames. Charcoal, on the other hand, does not vapourise and so it does not produce a flame. There are three different zones of a flame- dark zone, luminous zone and non luminous zone.

A chemical process in which a substance reacts with oxygen to give off heat is called combustion.

49. Goldsmiths use _____ of a flame for melting gold and silver

(1) outermost zone   (2) middle zone   (3) innermost zone   (4) any zone can be used

50. Middle zone is also known as

(1) zone of partial combustion   (2) yellow zone

(3) moderately hot zone   (4) All are correct

SECTION-C : BIOLOGY

This section contains **15 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

51. Which of the following is not a vector borne disease ?

(1) Common cold   (2) Malaria   (3) Dengue   (4) Sleeping sickness

52. Factor not essential for photosynthesis is

(1) O_2 (2) CO_2 (3) H_2O (4) Chlorophyll

53. Which of the following structures present in a cell is/are not bounded by a membrane ?

(1) Nucleolus   (2) Ribosomes   (3) Centriole   (4) All of the above

54. Antibiotics can be obtained from

(1) Bacteria   (2) Fungi   (3) Protozoan   (4) Both 1 and 2

55. Choose odd option from the following.

(1) Pitcher plant   (2) Sundew plant   (3) Venus fly trap   (4) Lichen

56. Protein coat of a virus enclosing its genetic material is known as

(1) Vector   (2) Capsid   (3) Gene   (4) None of the above

57. Which one of the following statement about mycoplasma is wrong ?

(1) They cause diseases in plants.

(2) They are also called PPLO.

(3) They are always aerobic.

(4) They are resistant to Penicillin.

58. Adjacent cells in a plant tissue are held together by middle lamella which is mainly made up of

(1) Cellulose

(2) Calcium & Magnesium pectate

(3) Hemicellulose

(4) Lignin & Suberin

59. Which of the following nutrient is essential for synthesis of chlorophyll in plants ?

(1) Na   (2) Ca   (3) Fe   (4) Mg

60. The Venn diagram given below shows plant and animal characteristics.
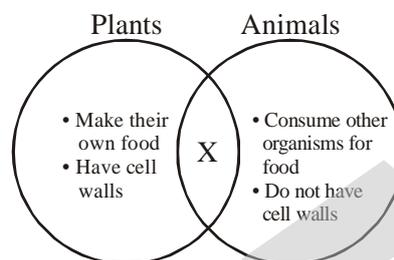
Which characteristic shared by plants and animals belongs in the space marked X ?

(1) Locomotion   (2) Multicellular   (3) Photosynthetic   (4) Producer

Comprehension for (Q.No.61 to Q.No.63)

Viruses are microscopic entity. They however, reproduce only inside the cells of the host organism, which may be a bacterium, plant or animal. Common ailments like cold, influenza (flu) and most coughs are caused by viruses. They have characteristics of both living and non living. Serious diseases like polio and chicken pox are also caused by viruses. Diseases like dysentery and malaria are caused by protozoans which are unicellular eukaryotic animals whereas typhoid and tuberculosis (TB) are caused by bacteria which are unicellular prokaryotic organisms.

61. Which among the following is considered as connecting link between living and non living ?

(1) Bacteria   (2) Fungi   (3) Protozoa   (4) Virus

62. Malaria, Influenza and TB respectively are caused by

(1) Protozoan,Virus and Fungi

(2) Protozoan,Virus and Bacteria

(3) Bacteria, Virus and Protozoan

(4) Virus, Bacteria and Fungi

63. Unicellular eukaryotic cell is of

(1) Bacteria   (2) Protozoan   (3) Virus   (4) Mushroom

Comprehension for (Q.No.64 & Q.No.65)

In any cell, nucleus control cellular activities and ribosomes are the sites of protein synthesis. Mitochondria are called power house or ATP mills as they are sites for ATP formation which is used in various metabolic activities or functions of the cell. Lysosomes are bags of digestive enzymes which destroy worn out cells and foreign material.

64. Which cells are likely to possess the highest numbers of mitochondria ?

(1) Hair cells

(2) Skin surface cells

(3) Red blood cells

(4) Muscle cells

65. Consider the following statements :

(1) Lysosomes are called as 'suicide bags' of a cell

(2) The fold of inner membrane of mitochondria increase the area for ATP generating chemical reactions.

(3) Ribosome helps in formation of plasma membrane.

Which of the following statements is/are correct ?

(1) 1 & 2   (2) 2 & 3   (3) 1 only   (4) 1, 2 & 3

SECTION-D : MATHEMATICS

This section contains **15 Multiple Choice Questions.** Each question has four choices (1), (2), (3) and (4) out of which ONLY ONE is correct.

66. If $4^{-x} = 16$, then x is

(1) 2   (2) –2   (3) 0   (4) 4

67. The value of $\sqrt[3]{343} \times \sqrt[3]{-64}$ is

(1) 28   (2) –28   (3) 18   (4) –18

68. The dimensions of a photograph are 30 cm × 20 cm. Find the length of the wooden frame needed to frame the photograph

(1) 600 cm   (2) 50 cm   (3) 100 cm   (4) 500 cm

69. The cube root of 27^2 is

(1) 27   (2) 9   (3) 3   (4) None

70. Square of an even number is

(1) An even number

(2) An odd number

(3) Sometimes even sometimes odd

(4) None of these

71. By what number should $1\frac{2}{3}$ be divided to get $\frac{2}{3}$?

(1) $2\frac{2}{3}$ (2) $1\frac{2}{3}$ (3) $\frac{4}{9}$ (4) $2\frac{1}{2}$

72. In the following options, the measures of three angles are given. Which of these can form a triangle ?

(1) 45°, 61°, 73°

(2) 63°, 37°, 80°

(3) 30°, 20°, 125°

(4) 59°, 72°, 61°

73. How many metres of a carpet 60 cm wide will be required to cover the floor of a room which is 18 metres long and 15 metres broad?

(1) 320 m (2) 360 m (3) 420 m (4) 450 m

74. The given rational numbers are $-\dfrac{2}{3}, \dfrac{7}{8}, -\dfrac{4}{5}, \dfrac{2}{9}$. The sum of the greatest and the smallest rational number is

(1) $\dfrac{47}{63}$ (2) $\dfrac{3}{40}$ (3) $-\dfrac{22}{15}$ (4) $-\dfrac{12}{27}$

75. Write 3^{12}, 2^{15}, 5^{6} in the ascending order.

(1) 5^{6}, 2^{15}, 3^{12} (2) 5^{6}, 3^{12}, 2^{15}

(3) 2^{15}, 5^{6}, 3^{12} (4) 2^{15}, 3^{12}, 5^{6}

76. Find y in the following figure.

(1) 40º (2) 120º (3) 140º (4) 130º
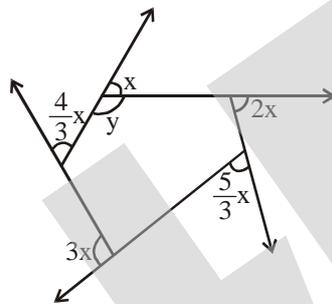
Comprehension for (Q.No.77 & Q.No.78)

The pie graph given below shows the different games played by the students of class IX. Study the pie graph and answer questions below.
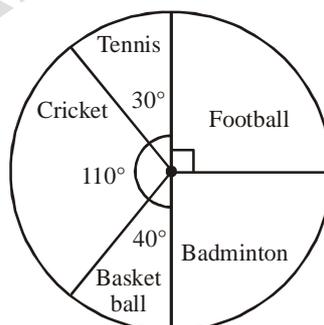
77. Which game is played by the least number of students?

(1) Tennis (2) Basketball

(3) Football (4) Badminton

78. If there are 108 students in the class, how many of them play badminton?

(1) 25 (2) 26

(3) 23 (4) 27

Comprehension for (Q.No.79 & Q.No.80)

A quadrilateral having one pair of opposite sides parallel and the other pair of opposite sides nonparallel is called a trapezium. If the two non-parallel sides of a trapezium are equal in length, then it is called an isosceles trapezium.

79. In the trapezium ABCD with AB ∥ CD, we have

(1) ∠A + ∠D = 90° (2) ∠A + ∠D = 180°

(3) ∠A + ∠D = 360° (4) ∠A + ∠D = 45°

80. In the isosceles trapezium PQRS with PQ ∥ RS and QR = PS, which of the following is correct ?

(1) ∠P + ∠S = 180° and ∠Q + ∠R = 180° (2) PS = QR and PR = QS

(3) ∠P = ∠Q and ∠R = ∠S (4) All of the above

ASAT (SAMPLE PAPER) CLASS : IX
(VIII to IX moving Students)

ANSWER KEY

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

Sample Paper ASAT