Class – 9th

SAMPLE PAPER

SECTION – A   (REASONING)

1.   In the following question, one term is wrong. Find out the wrong term.

225, 196, 169, 144, 121, 80

(a)   80   (b)   121   (c)   169   (d)   196

2.   If 4th Jan 2008 falls of Friday, what day of week will fall on 4th Jan 2009?

(a)   Monday   (b)   Friday   (c)   Wednesday   (d)   Sunday

3.   Directions: In the following question, one term is wrong. Find out the wrong term.

5, 10, 17, 24, 37, 50, 65

(a)   10   (b)   17   (c)   24   (d)   37

4.   AZ, CX, FU, …?….

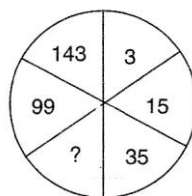(a)   IR   (b)   IV   (c)   JQ   (d)   KP

5.   Direction: In the following letter series, some of the letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.

abb __ baa __ a __ bab __ ab

(a)   abba   (b)   abab   (c)   ccac   (d)   aabb

6.   Find the missing character:

(a)   63   (b)   56

(c)   60   (d)   65

7.   What is the smallest number of ducks that could swim in this formation? "Two ducks in front of a duck, two ducks behind a duck and a duck between two ducks".

(a)   9   (b)   7   (c)   5   (d)   3

Direction for Question 8-10: In the figure given, there are three interesting circles each representing certain section of people. Different region are marked a-g. Read the statement in the question and choose the letter of the region which correctly represents the statement.
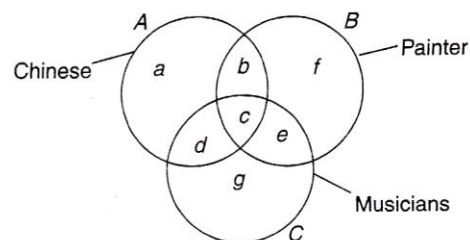
8. Chinese who are painters but not musicians?

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

9. Painters who are neither Chinese nor musicians.

    (a)   b   (b)   c   (c)   f   (d)   g

10. Chinese who are musicians but not Painters.

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

11. Introducing Reena, Monika said, "She is the only daughter of my Father's only daughter." How is Monika related to Reena?

    (a)   Aunt   (b)   Niece   (c)   Causin   (d)   Mother

12. Direction: The following problem, contains your problem figures marked A, B, C, and D and four answer figures marked (a), (b), (c), (d) .Select a figure from amongst the answer figures which will continue the same series are given in the problem figure
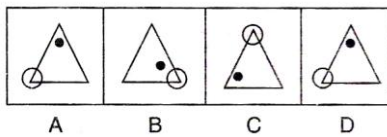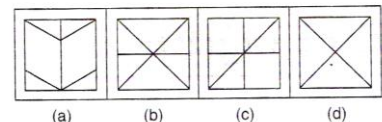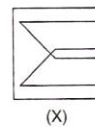
   Problem figures   Answer figyre
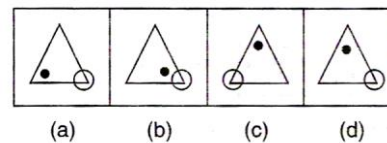

13. Direction: A fig. (X), is given, followed by four complex figures in such a way that fig.(X) is embedded in one of them. Choose that one

14. Direction: The following question, there is a figure (X) with one or more dots placed in it. He figure is followed by four other answer figure marked (a), (b), (c) and (d); only one of which is such as to make possible the placement of the dot or dots satisfying the same condition as in the figure (X). Find the correct answer figure in case.
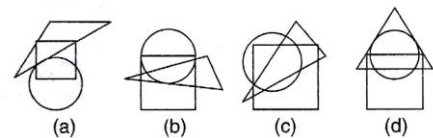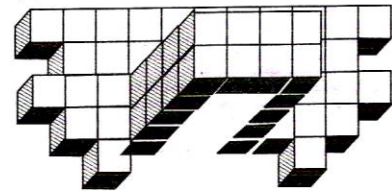

15. Direction: The following question complete the missing portion of the given pattern by selecting from the alternative (a), (b), (c) and (d).
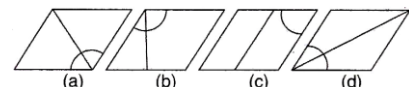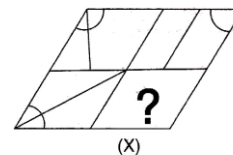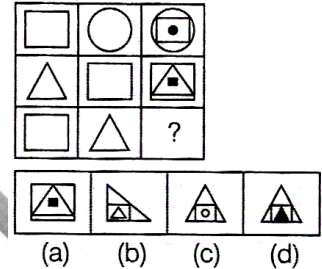
16.   Direction: Count the number of cubes in the following figure:


(a)   57   (b)   58

(c)   60   (d)   64

17.   Direction: In the following question, find out which of the following answer figure (a), (b), (c) and (d) completes the figure matrix

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

18.   Direction: In the following question, find one correct answer figurer from four alternatives which resembles the pattern forms when the transparent sheet design folded along the dotted line.

Problem figure   Answer figure

(a)   (b)   (c)   (d)
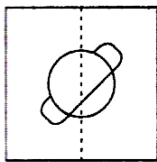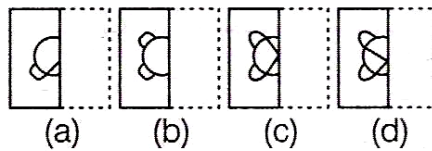
19.   Direction: In the following, three figures (X), (Y), (Z) showing a sequence of folding a paper are given, The figure depicts the cut, made on the folded paper. Select the answer from the alternatives, which would most closely resemble the third figure, when it is unfolded

Problem Figures   **Answer Figures**

(x)   (y)   (z)   (a)   (b)   (c)   (d)
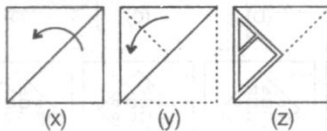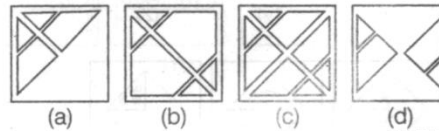
20.   4, 2, 5, 4, 7, 6, 10, 8, 14, ….?....

(a)   10   (b)   12   (c)   18   (d)   19

SECTION – B (MATHEMATICS)

21. $\dfrac{2^{n+4} - 2(2^n)}{2(2^{n+3})} = $ _____ .

(a) $2^{n+1} - \dfrac{1}{8}$ (b) -2^{n+1} (c) $1 - 2^n$ (d) $\dfrac{7}{8}$

22. If $x = \dfrac{a-b}{a+b}, y = \dfrac{b-c}{b+c}, z = \dfrac{c-a}{c+a}$, then the value of $\dfrac{(1+x)(1+y)(1+z)}{(1-x)(1-y)(1-z)}$ is _____ .

(a) abc   (b) $a^2 b^2 c^2$ (c) 1   (d) -1

23. If ℓ, m and n be three distinct lines such that $\ell \parallel$ n, then _____ .

(a) m = n   (b) $\ell \perp$ n   (c) m $\perp$ n   (d) m $\parallel$ n

24. In the given figure, BO, CO are the angle bisectors of external angles of ΔABC. Then $\angle$ BOC is _____ .

(a) $90^\circ - \dfrac{1}{2} \angle A$ (b) $90^\circ + \dfrac{1}{2} \angle A$

(c) $180^\circ - \dfrac{1}{2} \angle A$ (d) $180^\circ + \dfrac{1}{2} \angle A$
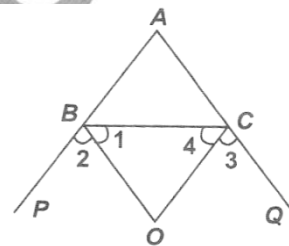
25. In the given figure, Δ ABC and Δ PBC are two isosceles triangles on the same base BC and vertices A and P are on the same side of BC. A and P are joined, them

(a) $\angle BPA = \dfrac{1}{2} BAC$ (b) $\angle BAP = \dfrac{1}{2} \angle BAC$

(c) $\angle CPA = \dfrac{1}{2} \angle BAC$ (d) $\angle BAP = 2\angle BAC$
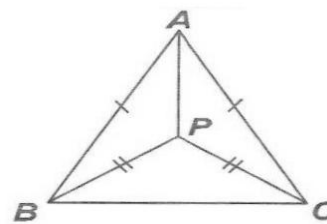
26. A right circular cone and a right circular cylinder have equal base and equal height. If the radius of the base and the height are in the ratio 5 : 12 respectively, then the ratio of the total surface area of the cylinder to that of the cone is _____ .

(a) 3 : 1   (b) 13 : 9   (c) 17 : 9   (d) 34 : 9

27. The following observations have been arranged in the ascending order. If the median of the data 29, 32, 48, 50, x, x + 2, 72, 78, 84, 95 is 63 then the value of x is _____ .

(a) 63   (b) 62   (c) 61   (d) 60

28. A man rows downstream 30 km and upstream 18 km, taking 5 hours each time. The velocity of current is _____.

    (a)   1.2 km/hr   (b)   6 km/hr   (c)   3.6 km/hr   (d)   2.4 km/hr

29. The given diagram shows the cross section of six identical balls touching each other on a horizontal surface.

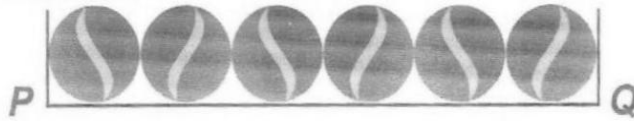   If the volume of each ball is $\dfrac{9\pi}{2}\,\text{cm}^3$, find the length of PQ (in cm).

    (a)   9   (b)   27   (c)   18   (d)   20

30. If x and y are rational numbers such that $\dfrac{15+\sqrt{2}}{15-\sqrt{2}} = x+y\sqrt{2},$ Then the value of x and y are respectively :

    (a) $\dfrac{225}{223}$ and $\dfrac{30}{223}$ (b) $\dfrac{229}{223}$ and $\dfrac{30\sqrt{2}}{223}$ (c) $\dfrac{219}{223}$ and $\dfrac{30}{223}$ (d) $\dfrac{227}{223}$ and $\dfrac{30}{223}$

31. Which of the following statement is correct ?

    (a)   (a − 3) is a factor of the polynomial = $a^3 + a^2 - 17a + 15$

    (b) $a^3 + a^2 - 17a + 15$ divided by (a − 3) leaves 5 as the remainder

    (c)   (a − 3) is a factor of the polynomial $a^3 - 6a^2 + 6a + 3$

    (d)   (a − 2) is a factor of the polynomial $3a^4 - 6a^2 - 8a + 2$

32. If $\log_3 a = 4$, then find the value of a.

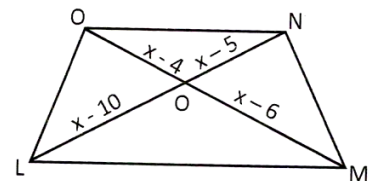   (a)   89   (b)   81   (c)   92   (d)   85

33. Find the area bounded by the axes and 2x + 3y = 12.

    (a)   12 square units   (b)   13 square units

    (c)   24 square units   (d)   7 square units

34. In the figure given below ON‖LM value of x is :

    (a)   33.33   (b)   5.8

    (c)   3.33   (d)   12.

35.   In the figure given, ABCD is a parallelogram and $\angle$ CBE = 70°. Find of all
       angles.

       (a)   60°, 120°, 60° and 120°   (b)   70°, 110°, 70° and 120°

       (c)   70°, 110°, 60° and 110°   (d)   70°, 110°, 70° and 110°
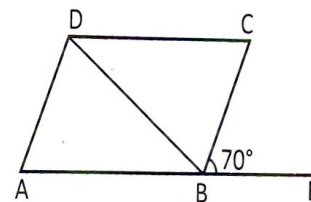
36.   In the figure given, PQ and RS are two parallel chords of the circle with
       centre O and radius 13 cm so that PQ = 24 cm and RS = 10 cm. Find the
       shortest distance between the two chords.

       (a)   17 cm   (b)   12 cm

       (c)   13 cm   (d)   15 cm
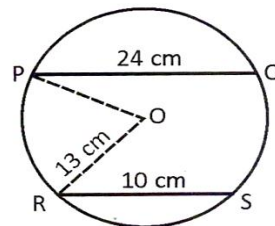
37.   Which one of the following points does not lie on the graph of equation $y - x + 2 = 0$?

       (a) $(-11, -13)$ (b) $(13, 11)$ (c) $(11, 13)$ (d)   9, 7

38.   If $2\sin 2\theta = \sqrt{3}$, then the value of θ is :

       (a) $\dfrac{\pi}{3}$ (b) $\dfrac{\pi}{6}$ (c) $\dfrac{\pi}{4}$ (d) $\dfrac{\pi}{2}$

39.   The height of an equilateral triangle is 6 cm. Find its area correct to two decimal places. (Take $\sqrt{3} = 1.732$)

       (a) 20.88 cm^2 (b) 20.78 cm^2 (c) 21.78 cm^2 (d) 22.78 cm^2

40.   Find the mean of the following frequency distribution

Mid-values	5	10	15	20	25
Frequency	4	2	3	6	10

       (a)   10.2   (b)   18.2   (c)   10   (d)   14

SECTION – C   (SCIENCE)

41.   A student has three cubes, one is steel cube with 40 g mass and 100 cm^3 volumes, second is silver cube with 30 g mass and 10 cm^3 volume, and third is iron cube with 80 g mass and 100 cm^3 volume. Compare the cube and find out which one of the following cube has the highest density?

   (a)   Steel cubes has highest density   (b)   Iron cube has highest density

   (c)   Silver cube has highest density   (d)   Steel and silver has same density

42.   Which one of the following statements correctly describes the relationship between the buoyant force and an object fluid?

   (a)   The buoyant force is equal to volume of the fluid that the object displaces.

   (b)   The buoyant force is equal to the density of the fluid that the object displaces.

   (c)   The buoyant force is equal to the volume of the fluid that the object displaces.

   (d)   The buoyant force is equal to the weight of the fluid that the object displaces.

43.   Smita wanted to study the rate of diffusion of liquids. She took water in two beakers and poured a drop of honey from the side of one beaker and a drop of blue ink from the side of other beaker. What did she observe?

   (a)   Honey diffuses faster than ink.

   (b)   Ink diffuses faster than honey

   (c)   Both honey and ink diffuses at the same rate.

   (d)   Ink diffuses but honey does not diffuse in water.

44.   Which of the following statements does not go well with the liquid state?

   (a)   Particles are loosely packed in the liquid state.

   (b)   Fluidity is maximum in the liquid state.

   (c)   Liquids cannot be compressed.

   (d)   Liquids take up the shape of any container in which they are placed.

45.   A plant is grown in bright sunlight. After a few hours, a leaf of the plant is plucked and treated with iodine solution and it turned blue black. When a section of this leaf is made and observed under microscope, _____ will be seen as stained blue – black.

   (a)   Nucleus   (b)   Cell wall   (c)   Chloroplast   (d)   Vacuole

46.   "Omnis cellula e cellula", an idea of Rudolf Virchow means that

(a)   All organisms are composed of cells

(b)   All living cells arise from pre-existing cells

(c)   Cell is the basic unit of life

(d)   Every organism starts its life as a single cell.

47.   A person is standing on an elevator. The situation in which he finds his weight less than actual, is when

(a)   The elevator moves upward with constant acceleration

(b)   The elevator moves downward with constant acceleration

(c)   The elevator moves upward with uniform velocity

(d)   The elevator moves downward with uniform velocity.

48.   In the first second of its flight, a rocket ejects 1/60 of its mass with a velocity of 2400 ms^{-1}. The acceleration of the rocket is

(a)   19.6 ms^{-2} (b)   30.2 ms^{-2} (c)   40 ms^{-2} (d)   49.8ms^{-2}

49.   The virus infected cells release special chemicals that hinder the infection of neighboring cells. These chemicals are called

(a)   Chaperonins   (b)   Interferons   (c)   Virions   (d)   Prions

50.   Which of the following statements about antibiotics is incorrect?

(a)   All antibiotics have selective toxicity.

(b)   They cause little or no damage to the host.

(c)   Penicillin inhibits carbohydrate synthesis.

(d)   Streptomycin inhibits protein synthesis.

51.   Weeds are the unwanted plants, which grow along with the crops and share nutrients, water and sunlight with the crops. Removal of these weeds can be done either by handpicking or with the help of chemicals. Which one of the following chemicals given below is a weedicide?

(a)   2, 4-D   (b) CH_4 (c)   BHC   (d) C_2H_4

52.   Which of the following statements is the drawback of the green revolution?

(a)   Excessive use of chemical fertilizers, pesticides, etc. resulted in air, soil and water pollution.

(b)   More requirement of water by high-yielding crops resulted in the depletion of underground water resources.

(c)   Use of agrochemicals was an expensive measure for Indian farmers.

(d)   All of these

53.   The initial odometer reading of cab is 369 km. It travelled for 2 hours and the final odometer reading showed 469 km. Find the approximate average speed of the cab.

(a) 14 ms^{-1} (b) 11 ms^{-1} (c) 8 ms^{-1} (d) 17 ms^{-1}

54.   Which formula gives the maximum number of electrons in a shell?

(a) n^2 (b) $2n^2$ (c) $3n^2$ (d) $4n^2$

55.   What is the feature of the fish that helps it overcome resistance during its movement in water?

(a)   Having a small head.   (b)   Having hollow bones.

(c)   Having a streamlined body.   (d)   Having a fluid in the body cavity.

56.   In which of the following animals does respiration occur without any respiratory organ?

(a)   Snake   (b)   Fish   (c)   Prawn   (d)   Earthworm

57.   Humans are classified according to the following hierarchy:

Animalia $\rightarrow$ Chordata $\rightarrow$ Mammalia $\rightarrow$ Primates $\rightarrow$ Hominidae $\rightarrow$ Homo $\rightarrow$ Sapiens

Which category is represented by primates in the above hierarchy?

(a)   Order   (b)   Genus   (c)   Kingdom   (d)   Family

58.   What is the number of water molecules contained in a drop of water weighing 0.12 g?

(a) 2.007×10^{21} (b) 4.014×10^{21} (c) 2.007×10^{22} (d) 4.014×10^{22}

59.   In which of the following is centrifugation method employed?

(a)   Oil, Dairy and Sugar industries   (b)   Textile industry

(c)   Nuclear plant   (d)   Rubber industry

60.   Which of the following is added to LPG to detect its leakage?

(a)   Naphthalene   (b)   Methyl ethyl sulphide

(c)   Benzene   (d)   Calcium

ANSWER KEY

1.	A	2.	D	3.	C	4.	C	5 .	A
6.	A	7.	D	8.	A	9.	C	10.	A
11.	D	12.	B	13.	B	14.	C	15.	A
16.	B	17	D	18.	D	19.	C	20.	A
21.	D	22.	C	23.	D	24.	A	25.	B
26.	C	27.	B	28.	A	29.	C	30.	D
31.	A	32.	B	33.	A	34.	C	35.	D
36.	A	37.	C	38.	B	39.	B	40.	B
41.	C	42.	D	43.	B	44.	B	45.	C
46.	B	47.	B	48.	C	49.	B	50.	C
51.	A	52.	D	53.	A	54.	B	55.	C
56.	D	57.	A	58.	B	59.	A	60.	B