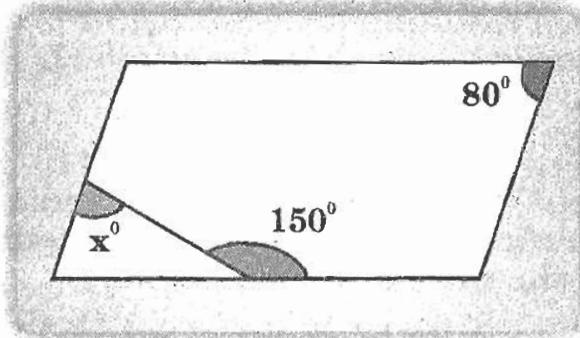


CLASS : IX

MATHEMATICS

1. If $2009 = p^a \cdot q^b$, where "p" and "q" are prime numbers, then find the value of $p + q$.
 (A) 3 (B) 48 (C) 51 (D) 2009
2. In the parallelogram, the value of "x" is:



- (A) 30 (B) 50 (C) 70 (D) 80
3. The number of integers between $-\sqrt{8}$ and $\sqrt{32}$ is:
 (A) 5 (B) 6 (C) 7 (D) 8
4. Let $f(x) = x^2 + x - 6$. For what values of "t" does $f(t-5) = 0$?
 (A) -3 and 2 (B) -2 and 3 (C) 5 (D) 2 and 7
5. Given: $3x - 4y = 7$ and $x + cy = 13$, for what value of "c" will the two equations not have a solution?
 (A) $\frac{3}{4}$ (B) $\frac{4}{3}$ (C) -4 (D) $-\frac{4}{3}$
6. Which of the following polynomials below is identical to the polynomial $(x^2 - 1)(x^2 - 4)$?
 (A) $x^4 + 4$ (B) $x^2 - 5x + 4$
 (C) $(x^2 + 1)(x^2 + 4)$ (D) $(x^2 + x - 2)(x^2 - x - 2)$
7. Let $f(x)$ denote a polynomial of degree 3. Suppose $f(x+2) - f(x) = x^2 + 4x + 4$ and $f(1) = 9$. Find the value of $f(3)$.
 (A) 18 (B) 19 (C) 23 (D) 13
8. A circle of radius 25 units has a chord going through a point that is located 10 units from the centre. What is the shortest possible length that chord could have?
 (A) 25 units (B) $\sqrt{525}$ units (C) 40 units (D) $\sqrt{2100}$ units

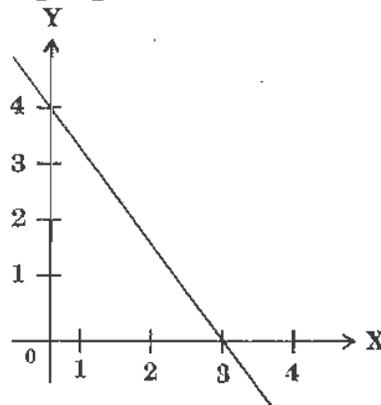
9. A line parallel to the base of a triangle cuts the triangle into two regions of equal area. This line also cuts the altitude into two parts. Find the ratio of the two parts of the altitude.
- (A) 1 : 1 (B) 1 : 2 (C) $1 : \sqrt{2}$ (D) $1 : (\sqrt{2} + 1)$
10. Given two similar triangles one of which has twice the perimeter of the other, by what factor is the area of the larger triangle bigger than the smaller?
- (A) 2 (B) 4 (C) $\sqrt{2}$ (D) $2\sqrt{2}$
11. Given, three segments of length x , $(11 - x)$ and $(x - 4)$ respectively. Which of the following indicates the set of all numbers "x" such that the three segments could be the lengths of the sides of a triangle?
- (A) $x > 4$ (B) $0 < x < 11$ (C) $4 < x < 11$ (D) $5 < x < 7$
12. Four points are on a line segment, as shown. If $AB : BC = 1 : 2$ and $BC : CD = 8 : 5$, then $AB : BD$ equals ____



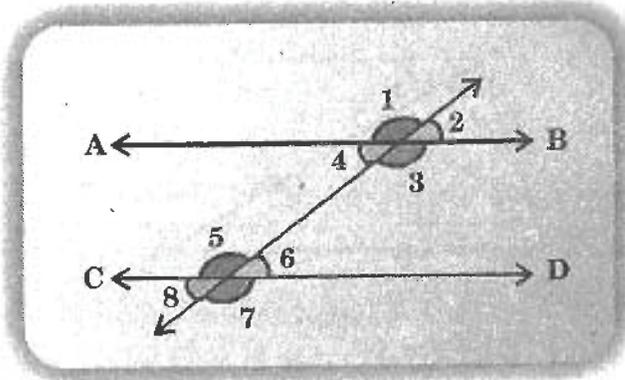
- (A) 4 : 13 (B) 1 : 13 (C) 1 : 7 (D) 3 : 13
13. When expanded, the number of zeroes in 1000^{10} is:
- (A) 13 (B) 30 (C) 4 (D) 10
14. If $x = \frac{a-b}{a+b}$, $y = \frac{b-c}{b+c}$ and $z = \frac{c-a}{c+a}$, then the value of $\frac{(1+x)(1+y)(1+z)}{(1-x)(1-y)(1-z)}$ is:
- (A) abc (B) $a^2b^2c^2$ (C) 1 (D) -1

15. The point $(-3, 2)$ is at a distance of ____ units from Y-axis.
- (A) 2 units (B) 3 units (C) -3 units (D) 5 units
16. The above diagram shows the graph of ____

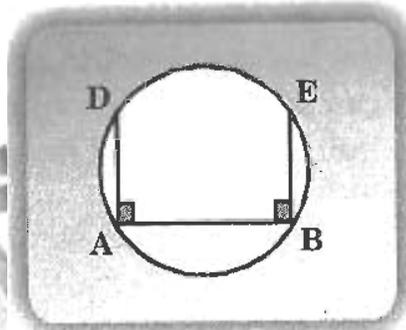
- (A) $y = x - 3$
 (B) $y = -2x + 3$
 (C) $y = -x - 3$
 (D) $y = \frac{-4x}{3} + 4$



17. In the figure, $AB \parallel CD$ and $\angle 1 : \angle 2 = 3 : 2$. The measure of $\angle 6$ is _____

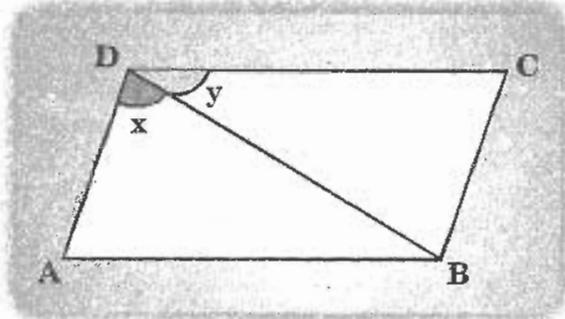


- (A) 72° (B) 36° (C) 108° (D) 144°
18. The area of a triangle whose sides are 13 cm, 14 cm and 15 cm is:
 (A) 84 sq cm (B) 64 sq cm (C) 825 sq cm (D) 105 sq cm
19. Given a chord AB in a circle as shown.
 If two more chords AD and BE are drawn perpendicular to AB as shown in the figure, then _____



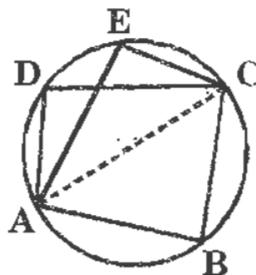
- (A) $AD = BE$ (B) $AD = 2BE$ (C) $2AD = BE$ (D) $AD \neq BE$
20. If $\triangle ABC$ and $\triangle PQR$ are having equal area and $AB = PQ$, then their corresponding altitudes are _____
 (A) having different length (B) having same length
 (C) cannot be determined (D) none of these

21. If ABCD is a parallelogram, then the shown angles "x" and "y" are related by:



- (A) $x = y$ (B) $x > y$
 (C) $x < y$ (D) cannot be determined from the given data
22. In $\triangle ABC$, if $\angle B = \angle C = 45^\circ$, which of the following is the longest side?
 (A) AB (B) AC (C) BC (D) None of these
23. If angles P, Q, R and S of the quadrilateral PQRS, taken in order, are in the ratio 3 : 7 : 6 : 4, then PQRS is a ____
 (A) rhombus (B) parallelogram
 (C) trapezium (D) kite
24. Which of the following statements is/are true?
 (A) Only one line can pass through a single point.
 (B) There are an infinite number of lines which pass through two distinct points.
 (C) A terminated line can be produced indefinitely on both the sides.
 (D) All the above
25. Given, a quadrilateral ABCD is inscribed in a circle as shown in the figure below.

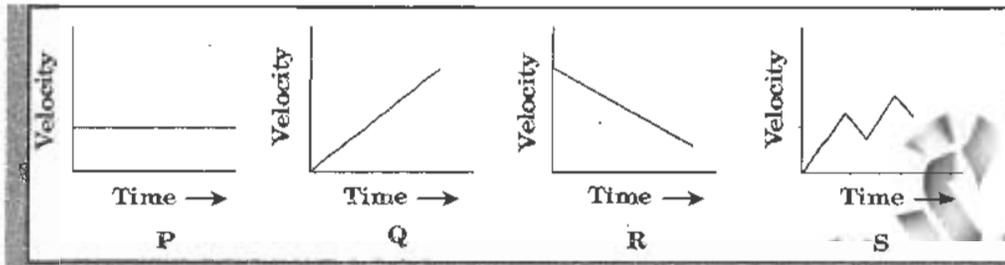
If $\angle B = 125^\circ$, then $\angle E$ is equal to _____



- (A) 55° (B) 125° (C) 130° (D) 62.5°

CLASS : IX**PHYSICS**

26. Which of the following graphs represent an object moving with a non-uniform accelerated motion?



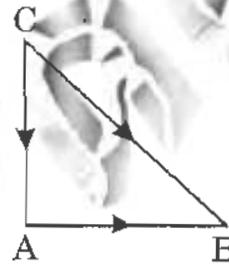
- (A) P only (B) Q & R only (C) S only (D) Q, R & S only
27. A player caught a cricket ball of mass 150 g moving at a speed of 20 m/s. If the catching process is completed in 0.1 s, the force of the blow exerted by the ball on the hand of player is equal to:
- (A) 3 N (B) 30 N (C) 150 N (D) 300 N
28. Upthrust of a body in a fluid doesn't depend upon its:
- (A) weight (B) volume (C) density (D) 'g' at that point
29. In which of the following examples, work done is negative?
- (A) Work done by the force of gravity on a moving aeroplane
 (B) Work done by the force of gravity on a ball thrown upwards
 (C) Work done by the force of gravity on a freely falling object
 (D) Work done by the force of gravity on a satellite revolving around the earth
30. The regions of compressions and rarefractions of sound wave are established because:
- (A) the sound wave undergoes diffraction behind obstacles
 (B) the reflected sound wave at fixed end interferes with the incident wave
 (C) the longitudinal movement of air molecules produce pressure fluctuations
 (D) the speed of the sound wave changes as it travels through a medium

31. A parachutist after bailing out, falls 50 m without friction. When parachute opens, it decelerates at 2 m/s^2 . He reaches the ground with a speed of 3 m/s. At what height did he bail out?

- (A) 293 m (B) 111 m (C) 91 m (D) 182 m

32. Three forces start acting simultaneously on a particle with velocity 'V'. These forces are represented in magnitude and direction by three sides of a triangle (ABC) as shown. The particle will now move with velocity:

- (A) V, remain unchanged
 (B) less than V
 (C) greater than V
 (D) depending upon magnitude of largest force BC



33. Krishna is trying to push an empty air tight bottle into a beaker full of water. As he tries to push it further down:

- (A) he needs to apply more force
 (B) he needs to apply less force
 (C) he needs to apply same force at any depth
 (D) he need not apply any force



34. A pump installed on ground takes 15 minutes to fill a water tank of 30 m^3 volume placed at a height of 50 m. If the efficiency of pump is 30%, the power consumed by the pump will be: *(Take density of water = 1000 kg/m^3)*

- (A) 42 kW (B) 45 kW (C) 49 kW (D) 52 kW

35. Which of the following statements about sound waves is correct?

- (A) Sound waves are not affected by the medium through which it travels
 (B) Sound waves travel faster in air than in liquid

- (C) Sound waves travel faster in solid than in air
(D) Sound waves cannot travel through a solid
- 36. A stone is dropped from a building and 2 seconds later another stone is dropped. How far apart are these two stones by the time the first one has reached at a speed of 30 m/s?**
(Take $g = 10 \text{ m/s}^2$)
- (A) 80 m (B) 100 m (C) 60 m (D) 40 m
- 37. If suddenly the gravitational force of attraction between earth and a satellite revolving around it becomes zero, then the satellite will:**
- (A) continue to move in its orbit with same velocity
(B) move tangentially and escape away
(C) become stationary in its orbit
(D) move towards the Earth
- 38. A block of wood of length 40 cm and area of cross section 15 cm^2 floats in water with $3/8$ of its length above water. What is the density of wood? (density of water 1 g/cm^3)**
- (A) 0.256 g/cm^3 (B) 0.526 g/cm^3
(C) 0.625 g/cm^3 (D) 0.650 g/cm^3
- 39. Two bodies of masses 20 kg and 15 kg are dropped from the top of a building. At any instant during the fall they have equal:**
- (A) potential energy (B) kinetic energy
(C) momentum (D) acceleration
- 40. An ultrasonic wave is sent from a ship towards the bottom of the sea. It is found that the time interval between the sending and receiving of wave is 1.6 s. What is the depth of the sea, if the velocity of sound in the sea water is 1400 m/s?**
- (A) 1120 m (B) 560 m
(C) 1400 m (D) 112 m

41. Which of the following statements is NOT true for a particle moving in a circle with a constant angular speed?
- (A) The velocity vector is tangent to the circle
 - (B) The acceleration vector is tangent to the circle
 - (C) The acceleration vector points to the centre of the circle
 - (D) The velocity and acceleration vectors are perpendicular to each other
42. A ball is released from the top of a tower of height 'h' metres. It takes 'T' seconds to reach the ground. What is the position of the ball in T/3 seconds?
- (A) h/9 metres from ground
 - (B) 7h/9 m from ground
 - (C) 8h/9 metres from ground
 - (D) 17h/18 m from ground
43. The S.I unit of relative density is:
- (A) kg m^{-3}
 - (B) g/cm^3
 - (C) kg/cm^3
 - (D) none of the above
44. A box of mass 1 kg is pulled through 1 m along a level floor by a horizontal force of 8 N. The box is then raised vertically on to a bench 2 m high. What is the total workdone on the box? (Take $g = 10 \text{ m/s}^2$)
- (A) 18 J
 - (B) 28 J
 - (C) 8 J
 - (D) $\sqrt{8^2 + 20^2}$ J
45. Which of the following example shows, an object does not change its magnitude of velocity but only its direction of motion?
- (A) Parachutist bailing out of an aeroplane
 - (B) Motion of a body along a circular path
 - (C) A body moving up against gravity
 - (D) A car moving with uniform velocity in a straight line
46. Which of the following is NOT an example of action-reaction pair?
- (A) To walk, we push the ground in the backward direction by feet
 - (B) When a bullet is fired from a gun, the gun recoils

- (C) A rocket engine moves up by ejecting gases downwards
- (D) A book kept on a table is acted upon by two forces, the force exerted by earth (gravitational force) due to weight of the book and the normal force, applied by the table
47. The time period of a satellite is 5 hours. If the separation between the earth and the satellite is increased to 4 times what will be the new time period?
- (A) 20 hours (B) 10 hours (C) 80 hours (D) 40 hours
48. A body 'A' of mass 5 kg and a body 'B' of mass 10 kg are dropped simultaneously from a height of 15 m. Calculate the ratio of their K.E., K_A/K_B when they are 10 m above the ground. (Take $g = 10 \text{ m/s}^2$)
- (A) 1 (B) 1/2 (C) 1/3 (D) 1/4
49. A body loses half of its velocity while penetrating 3 cm into a wooden block, then how much will it penetrate more before coming to rest?
- (A) 1 cm (B) 2 cm (C) 3 cm (D) 4 cm
50. Which of the following statements is NOT true?
- (A) The mass of an object is a measure of its inertia
- (B) A force produces change of momentum
- (C) In a high jump an athlete is made to fall on a cushioned bed to decrease his time of fall, and hence the impact
- (D) In an isolated system (where there is no external force), the total momentum remains constant

CLASS : IX

CHEMISTRY

51. Conversion of 475 K into celsius scale will give:
- (A) 301.85 °C (B) 273 °C (C) 207 °C (D) 201.85 °C
52. Which of the following properties is different for solids, liquids and gases?
- (A) Movement of molecules (B) Particle size of the substance
- (C) Mass of the substance (D) Energy exchanges

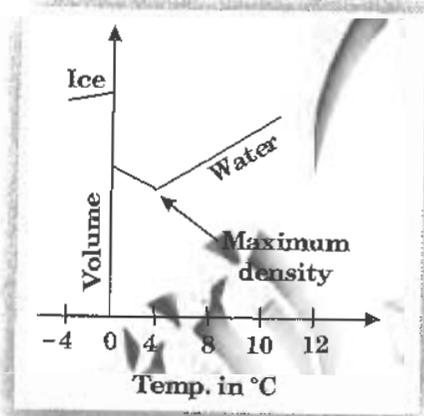
53. Non-reacting gases have tendency to mix with each other. This phenomenon is known as:

- (A) chemical reaction (B) diffusion
(C) effusion (D) explosion

54. Amorphous solids:

- (A) are more flexible at higher temperature
(B) include glasses
(C) do not have specific melting point
(D) all of the above

55. Study the graph given below and select the correct statement.



- (A) When water is cooled to 4 °C it contracts
(B) At 0 °C water freezes
(C) The volume of ice is more than that of water at 0 °C
(D) All of the above
56. Two substances A and B when brought together form a substance C with the evolution of heat. The properties of C are entirely different from those of A and B. The substance C is:
- (A) a compound (B) an element
(C) a metal (D) none of the above
57. Which of the following solutions show Tyndall effect?
- (A) A solution of common salt (B) A solution of sodium carbonate
(C) Starch solution (D) Milk

58. Column II gives methods to separate phases mentioned in column I. Choose the correct answer.

Column I	Column II
a. Miscible liquids	i. distillation
b. Immiscible liquids	ii. crystallisation
c. Pure copper sulphate from an impure sample	iii. sublimation
d. Salt and ammonium chloride	iv. funnel

- (A) a - i, b - iv, c - ii, d - iii (B) a - ii, b - iii, c - i, d - iv
 (C) a - iv, b - iii, c - i, d - ii (D) a - i, b - ii, c - iv, d - iii
59. The size of a colloidal particle is
- (A) 10^{-1} to 10^{-3} cm (B) 10^{-5} to 10^{-7} cm
 (C) 10^{-8} to 10^{-5} cm (D) 10^{-6} to 10^{-8} cm
60. Which of these statements is/are true?
- (A) The components of a solution can be separated by filtration
 (B) The particles of a colloid can pass through a filter paper
 (C) The constituents of a compound can be separated easily
 (D) Both A and B
61. All samples of water contain hydrogen and oxygen in the mass ratio 1 : 8. This is in agreement with the law of:
- (A) conservation of mass (B) constant proportion
 (C) multiple proportion (D) gaseous volumes
62. Which of the following elements is divalent?
- (A) Chlorine (B) Magnesium
 (C) Boron (D) Carbon
63. Selenium ingested in the amount of 90 micrograms per day causes loss of hair. How many selenium atoms are in this size sample? (Atomic weight of Se = 78.96)
- (A) 6.9×10^{23} (B) 8.8×10^{17}
 (C) 8.8×10^{22} (D) 6.9×10^{17}

64. Number of atoms and gram atoms present in 20 g of calcium respectively are:
- (A) 3.1×10^{23} and 0.05 (B) 3.01×10^{23} and 0.5
(C) 0.5 and 3.1×10^{23} (D) 0.2 and 3.1×10^{23}
65. If the formula of a chloride of a metal M is MCl_3 , then the formula of the phosphate of metal M will be:
- (A) MPO_4 (B) M_2PO_4
(C) M_3PO_4 (D) $M_2(PO_4)_3$
66. Assertion : Atoms are electrically neutral.
Reason : A neutral particle, neutron is present in the nucleus of an atom.
- (A) Both assertion and reason are true and reason is the correct explanation of assertion
(B) Both assertion and reason are true, but reason is not the correct explanation of assertion
(C) Assertion is true, reason is false
(D) Assertion is false, reason is true
67. While performing cathode ray experiment, it was observed that there was no passage of electric current under normal conditions. Which of the following can account for this observation?
- (A) Dust particles are present in air
(B) Carbon dioxide is present in air
(C) Air is a poor conductor of electricity under normal conditions
(D) None of the above
68. Which of the following is the pair of isobar?
- (A) ${}^7_7N^{15}$, ${}^8_8O^{16}$ (B) ${}^6_6C^{13}$, ${}^7_7N^{14}$ (C) ${}^6_6C^{13}$, ${}^7_7N^{13}$ (D) ${}^6_6N^{13}$, ${}^8_8O^{15}$
69. Ozone in the stratosphere is depleted by:
- (A) $C_6F_6Cl_6$ (B) C_7F_{16}
(C) CF_2Cl_2 (D) C_6F_6
70. Besides CO_2 , other greenhouse gas is:
- (A) CH_4 (B) N_2 (C) Ar (D) O_2

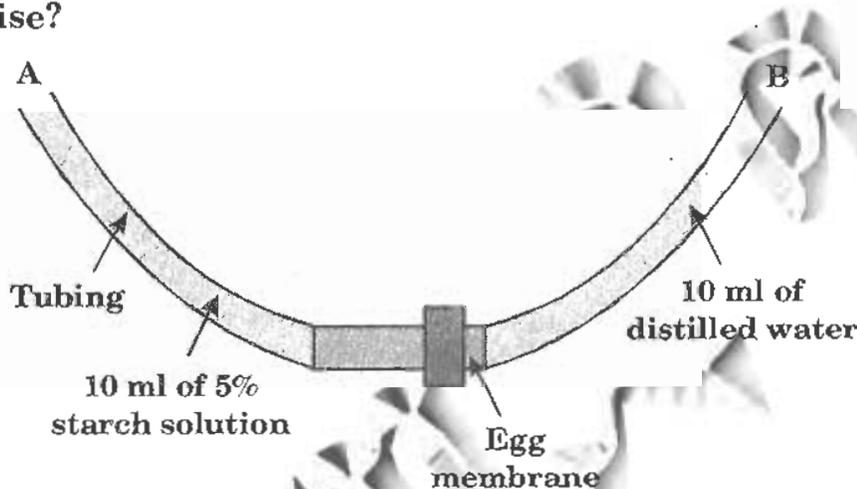
CLASS : IX

BIOLOGY

71. There are 8 chromosomes in the female gamete of plant P? How many chromosomes are there in each leaf cell of plant P?

- (A) 8 (B) 12
(C) 14 (D) 16

72. Which would most likely cause the liquid in Tube A to rise?



- (A) Starch concentrations being equal on each side of the membrane
(B) Water passing from a region of lower starch concentration to that of higher starch concentration
(C) Water and starch volumes being the same
(D) Solute in the tubes changing from a higher temperature to a lower temperature

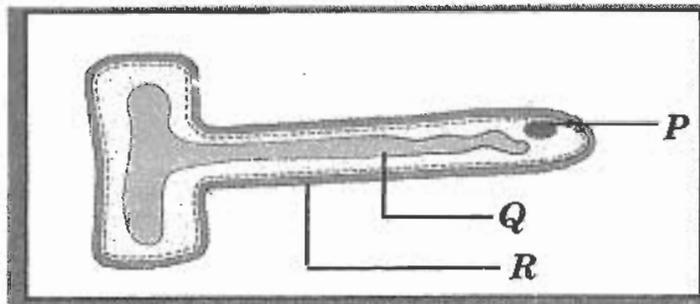
73. In California, citrus orchards were badly damaged by scale insects. To control these scale insects, ladybird beetles were released into these orchards. This type of pest control is known as:

- (A) chemical control (B) beetle control
(C) disease control (D) biological control

74. Which of the following statements aptly describes the animal given below for placing in its phylum?



- (A) The space between the ectoderm and endoderm is simply filled with mesenchymal mesodermal cells
- (B) Group of animals with long, flat body without true segmentation that lives in water or moist soil or parasitic invertebrates
- (C) A group of animals with an elongated, cylindrical and unsegmented body
- (D) Elongated body that is composed of partitions called metameres or annulations
75. Identify the parts labelled P, Q and R in the diagram of a root hair, shown below.

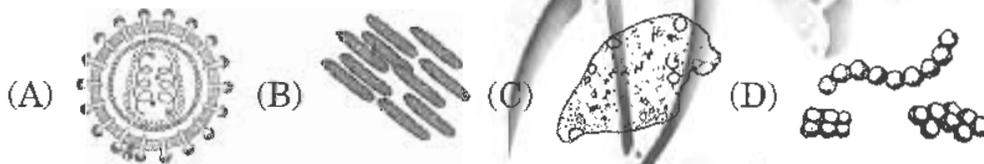


- (A) P - Vacuole, Q - Nucleus, R - Cell wall
- (B) P - Protoplasm, Q - Nucleus, R - Cell membrane
- (C) P - Nucleus, Q - Vacuole, R - Cell wall
- (D) P - Mitochondria, Q - Nucleus, R - Cell wall

76. Which of the following best describes the pathway of a protein from its manufacture to its release from the cell?

- (A) Golgi complex → endoplasmic reticulum → secretory vesicle
- (B) Endoplasmic reticulum → Golgi complex → secretory vesicle
- (C) Secretory vesicle → Golgi complex → endoplasmic reticulum
- (D) Secretory vesicle → Golgi complex → endoplasmic reticulum

77. Which of the following organisms is responsible for the destruction of vital cells in the immune system?



78. Mule is a product of:

- (A) breeding
- (B) mutation
- (C) hybridisation
- (D) interspecific hybridisation

79. Figure given below is the schematic diagram of a cell organelle. Which of the following statements about the figure is true?

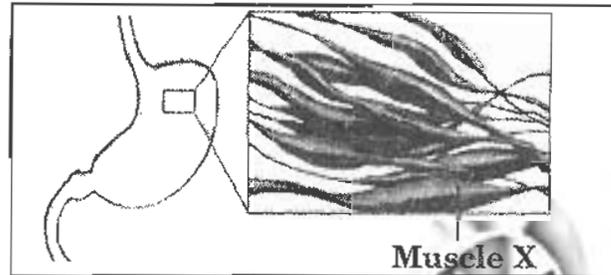


- (A) The organelle shown is a chloroplast; the arrow points to a thylakoid
- (B) The organelle shown is the Golgi apparatus; the arrow points to a vesicle
- (C) The structure shown is a mitochondrion; the arrow points to a cristae
- (D) The structure shown is the Golgi apparatus; the arrow points to a cristae

80. The presence of which of the following is useful in separating ferns and mosses into different taxonomic categories?

- (A) Nuclei (B) Chlorophyll (C) Vascular tissue (D) All of the above

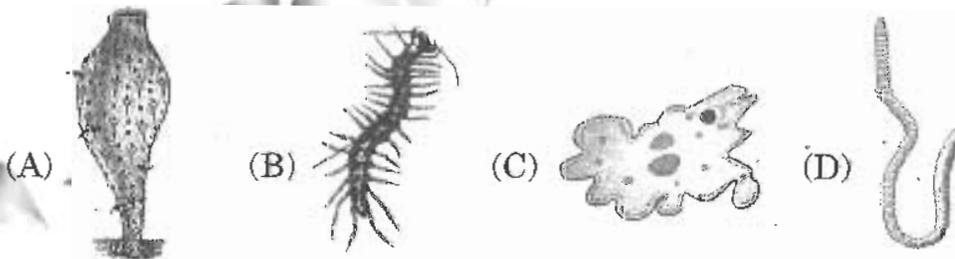
81. Observe the figure given below.



Which of these clearly identifies muscle 'X'?

- (A) Cylindrical, syncytial, unbranched and voluntary
 (B) Cylindrical, striped, nucleated and voluntary
 (C) Cylindrical, striped, branched and involuntary
 (D) Spindle, unbranched, uninucleated and involuntary

82. Which of the following have specialized cells but lack tissues?



83. Fever, headache, shivering, excreting small amount of dark yellow urine are the symptoms, a patient, describes to a doctor. The doctor's diagnosis is that the patient is suffering from a disease which is:

- (I) carried by mosquitoes (II) caused by protozoa
 (III) spread through contaminated food

- (A) I only (B) I and II only
 (C) II and III only (D) I, II and III

84. The characteristics given below belong to:

Five-part body plan

Radial symmetry

Spiny outer covering



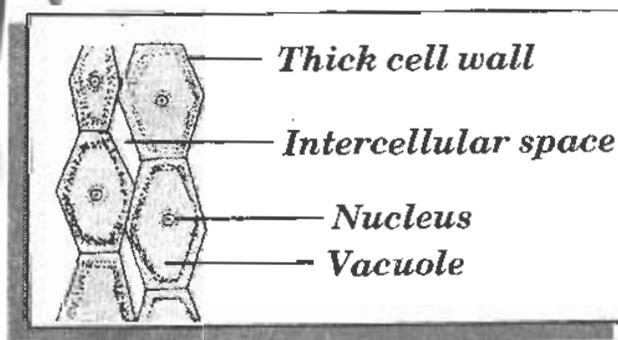
85. Which of the following characteristics are desirable in new strains of plants to increase food production?

- (A) High yield (B) Yield of good quality
(C) Short maturation period (D) All of the above

86. Which of the following pollutants and its effects is correctly matched?

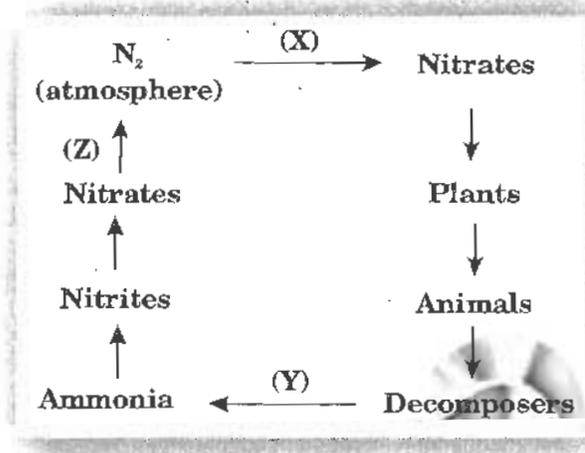
Pollutant	Effect
(A) Smoke	Acid rain
(B) Plumbum	Cough and cold
(C) Radioactive rays	Leukemia
(D) Sulphur dioxide	Brain damage

87. Nisha labelled parenchyma tissue as shown below. Which of the marking is wrong?



- (A) Nucleus (B) Vacuole (C) Thick cell wall (D) Intercellular spaces

88. In the following bio-geochemical cycle, name the processes marked as X, Y and Z.



- (A) X - Decomposition, Y - Nitrification, Z - Denitrification
 (B) X - Ammonification, Y - Nitrification, Z - Denitrification
 (C) X - Nitrification, Y - Ammonification, Z - Denitrification
 (D) X - Denitrification, Y - Ammonification, Z - Nitrification
89. A person is suffering from chest pain, breathlessness, loss of body weight, persistent cough and produces blood stained sputum. Name the disease and its causative agent.

	Disease	Causative agent
(A)	Tuberculosis	Mycobacterium tuberculosis
(B)	Typhoid	Salmonella typhi
(C)	Hepatitis - B	Hepatitis B virus
(D)	Tuberculosis	E.coli

90. Natural disasters that can affect habitats in the environment are:

- (I) droughts
 (II) floods
 (III) the thinning of the ozone layer

- (A) I only (B) I and II only (C) II and III only (D) I, II and III

CLASS : IX

GENERAL QUESTIONS

91. Genuine : Authentic :: Mirage : ?

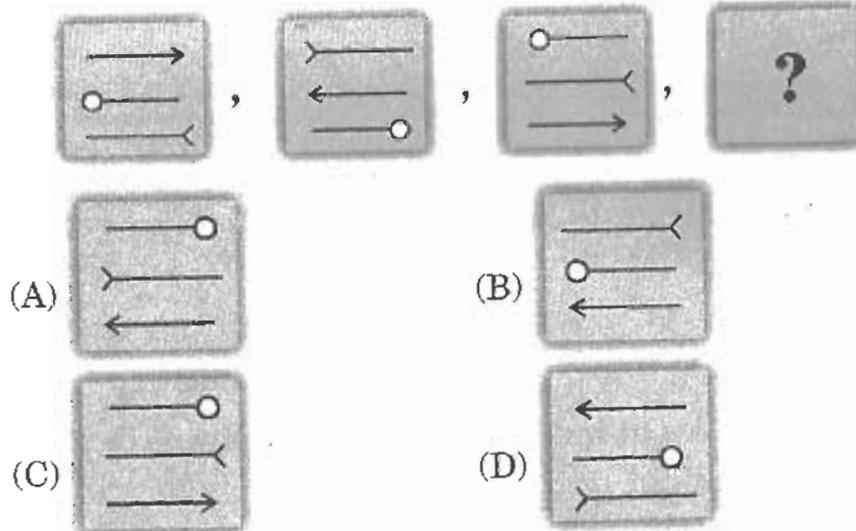
- (A) Illusion
- (B) Hideout
- (C) Image
- (D) Reflection

92. Which number should come next in the series given below?

7, 15, 32, 67, ?

- (A) 104
- (B) 183
- (C) 138
- (D) 281

93. What comes next in the sequence given below?



94. Which of these rivers crosses the Equator twice?

- (A) Nile
- (B) Congo
- (C) Godavari
- (D) Kosi

95. Where is the headquarters of the Interpol situated?

- (A) Paris
- (B) New York
- (C) Lyons
- (D) London

- 96. To win a Grand Slam in tennis, a player has to win:**
(A) Australian Open, Wimbeldon, French Open, US Open
(B) Wimbeldon, French Open, US Open
(C) Wimbeldon, French Open, pegas Czeck Open, US Open
(D) Davis cup, Wimbeldon, Fench Open
- 97. Which state launched 'Suvarna Gramodya', a programme aimed at developing 28,000 villages, on the occasion of its golden jubilee?**
(A) Kerala (B) Karnataka
(C) Uttar Pradesh (D) Tamil Nadu
- 98. With which famous Indian corporate house is the name of Azim Premji associated?**
(A) Infosys (B) Dell
(C) Satyam (D) Wipro
- 99. As per the fairy tale, what did Cinderella's horses change into at the stroke of midnight?**
(A) Mice (B) Goat
(C) Horse (D) None of these
- 100. The Chief guest at India's Republic Day parade in 2007 was:**
(A) President of Iran (B) King of Bhutan
(C) Vladimir Putin (D) King of Saudi Arabia

KEY FOR THE Q.P.-2009

1. B	2. C	3. D	4. D	5. D	6. D	7. A	8. D
9. D	10. B	11. D	12. A	13. B	14. C	15. B	16. D
17. A	18. A	19. A	20. B	21. D	22. C	23. C	24. C
25. A	26. C	27. B	28. A	29. B	30. C	31. A	32. A
33. A	34. C	35. C	36. D	37. C	38. C	39. D	40. A
41. B	42. C	43. D	44. B	45. B	46. D	47. D	48. B
49. A	50. C	51. D	52. A	53. B	54. D	55. D	56. A
57. C	58. A	59. B	60. B	61. B	62. B	63. D	64. B
65. A	66. B	67. C	68. C	69. C	70. A	71. D	72. B
73. D	74. D	75. C	76. B	77. A	78. D	79. B	80. C
81. D	82. A	83. B	84. B	85. D	86. C	87. C	88. C
89. A	90. B	91. A	92. C	93. D	94. B	95. C	96. A
97. B	98. D	99. A	100. C				