

**ATOMIC ENERGY CENTRAL SCHOOL NO.2, MUMBAI**  
ACADEMIC SESSION-2023-24

**MULTIPLE CHOICE QUESTIONS EXAMINATION – 2 (31.07.2023)**

**Time Allowed:** 180 mins

**CLASS:** IX

**Maximum Marks:** 120

**Section A - Mathematics**

- 1 After simplification,  $\frac{13^{1/5}}{13^{1/3}}$  is [1]  
a)  $13^{8/15}$                       b)  $13^{2/15}$                       c)  $13^{-2/15}$                       d)  $13^{1/3}$
- 2 If  $a = 2$ ,  $b = 3$ , then the value of  $(a^b + b^a)^{-1}$  is [1]  
a)  $\frac{1}{15}$                       b)  $\frac{1}{18}$                       c)  $\frac{1}{17}$                       d)  $\frac{1}{16}$
- 3 If  $\frac{5-\sqrt{3}}{2+\sqrt{3}} = x + y\sqrt{3}$ , then [1]  
a)  $x = -13, y = -7$       b)  $x = 13, y = -7$       c)  $x = -13, y = 7$       d)  $x = 13, y = 7$
- 4 The value of  $\left[(81)^{\frac{1}{2}}\right]^{\frac{1}{2}}$  is [1]  
a) - 3                      b) 9                      c)  $\frac{1}{3}$                       d) 3
- 5 Every real number is [1]  
a) either rational or irrational                      b) rational  
c) neither rational nor irrational                      d) irrational
- 6 Which of the following is not a rational number? [1]  
(i)  $\sqrt{27}$       (ii)  $\sqrt{36}$       (iii)  $\sqrt{\frac{4}{25}}$       (iv)  $\frac{\sqrt{20}}{\sqrt{5}}$   
a) (iv)                      b) (iii)                      c) (ii)                      d) (i)
- 7 If  $9^{x+2} = 240 + 9^x$ , then  $x =$  [1]  
a) 0.2                      b) 0.5                      c) 0.4                      d) 0.1
- 8  $(125)^{-1/3} = ?$  [1]  
a)  $-\frac{1}{5}$                       b) - 5                      c)  $\frac{1}{5}$                       d) 5
- 9 The possible expressions for the length, breadth and height of the cuboid whose volume is given by  $3x^3 - 12x$  is  
a)  $3x, (x + 2)$  and  $(x - 2)$                       b)  $x, (3x + 2)$  and  $(x - 2)$   
c)  $x, (x + 2)$  and  $(3x - 2)$                       d) None of these
- 10 The factorisation of  $4x^2 + 8x + 3$  is  
a)  $(2x - 1)(2x - 3)$                       b)  $(2x + 2)(2x + 5)$   
c)  $(x + 1)(x + 3)$                       d)  $(2x + 1)(2x + 3)$
- 11 If  $a + b + c = 0$ , then  $a^3 + b^3 + c^3$  is equal to  
a) 1                      b)  $3abc$                       c)  $2abc$                       d)  $abc$
- 12 If  $(x + y)^3 - (x - y)^3 - 6y(x^2 - y^2) = ky^2$ , then  $k =$

- a) 8                      b) 2                      c) 1                      d) 4
- 13 If  $x + 2$  and  $x - 1$  are the factors of  $x^3 + 10x^2 + mx + n$ , then the values of  $m$  and  $n$  are respectively.
- a) 5 and - 3      b) 17 and - 8      c) 23 and - 19      d) 7 and - 18
- 14 Degree of the polynomial  $2x^4 + 3x^3 - 5x^2 + 9x + 1$  is
- a) 3                      b) 1                      c) 2                      d) 4
- 15  $75 \times 75 + 2 \times 75 \times 25 + 25 \times 25$  is equal to
- a) 7500                      b) 3750                      c) 10000                      d) 6250
- 16 A symbol having a fixed value is called a \_\_\_\_\_.
- a) coefficient      b) none of these      c) constant      d) variable
- 17 The value of  $\frac{0.75 \times 0.75 \times 0.75 + 0.25 \times 0.25 \times 0.25}{0.75 \times 0.75 - 0.75 \times 0.25 + 0.25 \times 0.25}$  is
- a) 0                      b) 1                      c) 2                      d) - 1
- 18 The zeros of the polynomial  $p(x) = 2x^2 + 5x - 3$  are
- a)  $1, \frac{-1}{2}$                       b)  $\frac{-1}{2}, 3$                       c)  $\frac{1}{2}, 3$                       d)  $\frac{1}{2}, - 3$
- 19 If  $P(3, 9)$  and  $Q(- 3, - 4)$ , then (abscissa of  $P$ ) - (ordinate of  $Q$ ) is
- a) 1                      b) 7                      c) - 1                      d) - 7
- 20 The point  $(- 3, 0)$  lies
- a) in quadrant III    b) in quadrant IV
- c) on the negative direction of  $y$  - axis      d) on the negative direction of  $x$  - axis
- 21 If the  $x$  co - ordinate of a point is zero, then this point always lies:
- a) in quadrant IV      b) in quadrant III      c) on  $y$  - axis      d) on  $x$  - axis
- 22 A point of the form  $(0, b)$  lies on:
- a)  $x$  - axis                      b) quadrant I                      c) quadrant III                      d)  $y$  - axis
- 23 In which quadrant does the point  $(- 7, - 4)$  lie?
- a) IV                      b) I                      c) II                      d) III
- 24 The point which lies on  $y$  - axis at a distance of 5 units in the negative direction of  $y$  - axis is
- a)  $(- 5, 0)$                       b)  $(5, 0)$                       c)  $(0, - 5)$                       d)  $(0, 5)$
- 25 The value of  $k$  if  $x = 3$  and  $y = - 2$  is a solution of the equation  $2x - 13y = k$  is
- a) 31                      b) 23                      c) 32                      d) 30
- 26 Which of the following is a linear equation in two variables?
- a)  $2x - 5y = 0$       b)  $x + 5 = 8$       c)  $x^2 = 5x + 3$       d)  $5x = y^2 + 3$
- 27 Any solution of the linear equation  $2x + 0y + 9 = 0$  in two variables is of the form
- a)  $(-\frac{9}{2}, m)$                       b)  $(- 9, 0)$                       c)  $(0, -\frac{9}{2})$                       d)  $(n, -\frac{9}{2})$
- 28 Which of the following pair is a solution of the equation  $3x - 2y = 7$ ?

- a) (-2, 1)                      b) (1, -2)                      c) (5, 1)                      d) (1, 5)
- 29 How many lines pass through one point?  
a) one                      b) three                      c) two                      d) many
- 30 If we multiply both sides of a linear equation with a non - zero number, then the solution of the linear equation:  
a) Remains the same                      b) Changes in case of multiplication only  
c) Changes in case of division only                      d) Changes
- 31 The force applied on a body is directly proportional to the acceleration produced on it. The equation to represent the above statement is  
a)  $y = kx$                       b)  $y = x$                       c)  $y + x = 0$                       d) none of these
- 32 The equation  $x - 2 = 0$  on number line is represented by  
a) infinitely many lines                      b) two lines                      c) a point                      d) a line
- 33 The things which coincide with one another are  
a) Double the same thing                      b) Equal                      c) Unequal                      d) Triple the same thing
- 34 The number of dimensions, a surface has  
a) 2                      b) 1                      c) 0                      d) 3
- 35 Euclid stated that if equals are added to equals, the wholes are equal in the form of  
a) A definition                      b) An axiom                      c) A theorem                      d) None of these
- 36 It is known that if  $x + y = 10$  then  $x + y + z = 10 + z$ . The Euclid's axiom that illustrates this statement is:  
a) Second Axiom                      b) Fourth Axiom                      c) First Axiom                      d) Third Axiom
- 37 If one of the angles of a triangle is  $130^\circ$ , then the angle between the bisectors of the other two angles can be  
a)  $50^\circ$                       b)  $155^\circ$                       c)  $145^\circ$                       d)  $65^\circ$
- 38 One angle is equal to three times its supplement. The measure of the angle is  
a)  $90^\circ$                       b)  $130^\circ$                       c)  $135^\circ$                       d)  $120^\circ$
- 39 Two planes intersect each other to form a :  
a) point                      b) plane                      c) angle                      d) Straight line
- 40 Two straight lines AB and CD intersect one another at the point O. If  $\angle AOC + \angle COB + \angle BOD = 274^\circ$ , then  $\angle AOD =$   
a)  $86^\circ$                       b)  $137^\circ$                       c)  $94^\circ$                       d)  $90^\circ$

### **Section - B : Science**

- 41 A pressure cooker work on the basis of which of the following principle?  
a) By increases the quantity of liquid.  
b) Boiling point is raised by increasing the pressure on the surface of the liquid.  
c) By decreases the quantity of liquid.  
d) Boiling point is lowered by increasing the pressure on the surface of the liquid

- 42 A liquid is kept in an open china dish. The evaporation of the liquid can be accelerated.
- a) By keeping the dish under a running fan
  - b) All of these
  - c) By keeping the dish in the open
  - d) By blowing air into the liquid
- 43 Name the phenomenon which causes one crystal of potassium permanganate to turn a beaker of water purple.
- a) centrifugation
  - b) filtration
  - c) diffusion
  - d) sedimentation
- 44 In the determination of boiling of water, it is advised to put the bulb of the thermometer above the water rather than in water, it is to:
- a) reduce the error due to expansions of glass because of heat.
  - b) obtain the boiling point accurately even in much a shorter time.
  - c) make sure that boiling point obtained is accurate even when water sample contains non - volatile impurities dissolved.
  - d) reduce the error due to atmospheric pressure.
- 45 When water boils its temperature
- a) keeps on increasing as long as heating is continued.
  - b) may decrease or increase depending on the place where the experiment is being carried out.
  - c) remains constant
  - d) keeps decreasing then increases.
- 46 A desert cooler gave comfort due to cooling caused by the evaporation of water. Under which one of the following conditions it work more effectively?
- a) A hot and sunny day
  - b) Hot and rainy weather
  - c) On a rainy day
  - d) Hot and dry weather
- 47 When acetone or nail polish remover is applied cooling is experienced due to which factor?
- a) Reaction of nail polish with acetone
  - b) Boiling of acetone
  - c) Evaporation of acetone from the nail
  - d) Reaction of acetone with skin
- 48 Which of the following solids undergo sublimation upon heating?
- a) Urea
  - b) Iodine
  - c) Ice
  - d) Sugar
49. In an endothermic process, heat is absorbed, in an exothermic process heat is evolved and in an athermic process, no thermal change is observed. What is the nature of evaporation of ether?
- a) First exothermic then endothermic
  - b) Athermic
  - c) Exothermic
  - d) Endothermic
50. Three pieces of cloth were soaked in water, alcohol, and ether separately and kept on a table. What is the decreasing order of drying of the cloths?
- a) Water Alcohol Ether
  - b) Water Alcohol Ether
  - c) Alcohol Water Ether
  - d) Ether Alcohol Water
- 51 A few substances are arranged in the increasing order of **forces of attraction** between their particles. Which one of the following represents a correct arrangement?
- a) Air, sugar, oil
  - b) Salt, juice, air
  - c) Oxygen, water, sugar
  - d) Water, air, wind
- 52 The melting points of two solids A and B are 300 K and 350 K respectively. Which has stronger inter - particle forces?

- a) Both have the same inter - particle forces.    b) Both have greater inter - particle forces.  
 c) Solid B    d) Solid A
- 53 The cell organelles with digestive enzymes are:  
 a) food vacuoles    b) Golgi apparatus    c) lysosomes    d) ribosomes
- 54 Rough endoplasmic reticulum helps in the synthesis of:  
 a) steroids                  b) proteins                  c) starch                  d) glycogen
- 55 Which of the following are covered by a single membrane?  
 a) Mitochondria                  b) Vacuole                  c) Nucleus                  d) Plastid
- 56 The compounds synthesised near the ER are packaged and dispatched to various sites inside and outside the cell through:  
 a) rough endoplasmic reticulum                  b) Golgi apparatus  
 c) plasma membrane                  d) smooth endoplasmic reticulum
- 57 A cell will swell up if  
 a) The concentration of water molecules in the surrounding medium is higher than water molecules concentration in the cell.  
 b) The concentration of water molecules is the same in the cell and in the surrounding medium.  
 c) The concentration of water molecules does not matter.  
 d) The concentration of water molecules in the cell is higher than the concentration of water molecules in the surrounding medium.
- 58 Which plastids are colourless  
 a) chromoplasts    b) chloroplasts    c) Leucoplasts    d) None of these
- 59 The cell organelles (other than the nucleus) which contain DNA are:  
 a) Plastids and lysosomes                  b) Golgi apparatus and lysosomes  
 c) Plastids and mitochondria                  d) Mitochondria and Golgi apparatus
- 60 Most of the substances in the living world are transported across the cell membrane by the process of:  
 a) osmosis                  b) diffusion                  c) endocytosis                  d) plasmolysis
- 61 \_\_\_\_\_ coined the term “cell”  
 a) Gorbachev    b) Himmler    c) Robert Hooke    d) Antonie Van Leeuwenhock
- 62 A common feature of chloroplasts and mitochondria is that both are  
 a) found in plant cells                  b) having their own DNA and ribosomes  
 c) involved in photosynthesis                  d) found in animal cells
- 63 Kitchen of the cells  
 a) Golgi apparatus    b) Endoplasmic reticulum    c) Chloroplast    d) Mitochondria
- 64 Plasmolysis in a plant cell is defined as  
 a) Shrinkage of nucleoplasm                  b) Shrinkage of cytoplasm in hypertonic medium

c) Break down (lysis) of plasma membrane in hypotonic medium d) shrinkage of nucleolus

65 Which of the following is an incorrect pair?

1. Lysosome - Secretory granules.
2. Nucleus - Brain of the cell
3. Mitochondria - a powerhouse of the cell
4. Chloroplast - Kitchen of the cell

a) (1)                      b) (4)                      c) (2)                      d) (3)

66 A cell has 10 chromosomes. After mitotic cell division, the number of chromosomes in the daughter cell will be:

- a) 10                      b) 4                      c) 20                      d) 5

67 A body moving in a circle of radius  $r$  covers  $\frac{3}{4}$  th of the circle. The ratio of the distance to displacement is:

- a)  $3 : 2\sqrt{2}$                       b)  $3\pi : 2\sqrt{2}$                       c)  $3\sqrt{2} : 2\pi$                       d)  $2\sqrt{2} : 3\pi$

68 Equation of motion can be used for a body having:

- a) uniform acceleration                      b) non- uniform acceleration  
c) uniform motion                      d) non- uniform motion

69 A body is said to be in rest when:

- a) Its position doesn't change with time with respect to the observer.  
b) It's position changes with time w.r.t observer.  
c) The body moves in uniform motion, w.r.t observer                      d) None of these.

70 . The maximum speed of a train is 90 km/h. It takes 10 hours to cover a distance of 500 km. The ratio of its average speed to maximum speed is:

- a) 9:5                      b) 5:9                      c) 1: 5                      d) 5:1

71 . What is the slope of the body when it moves with uniform velocity?

- a) positive                      b) zero                      c) may be positive or negative                      d) negative

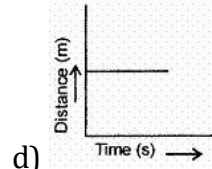
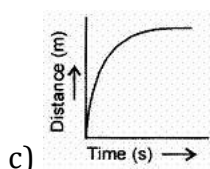
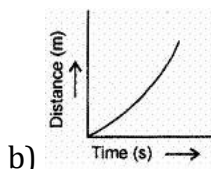
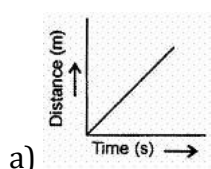
72 . A car accelerates uniformly from 18 km/h to 36 km/h in 5 minutes. The acceleration is

- a)  $5 \text{ ms}^{-1}$                       b)  $1 \text{ ms}^{-2}$                       c)  $1 \text{ km/s}^2$                       d)  $216 \text{ ms}^{-2}$

73. Suppose a boy is enjoying a ride on a merry - go - round which is moving with a constant speed of  $10 \text{ ms}^{-1}$  . It implies that the boy is

- a) Moving with no acceleration                      b) At rest  
c) In accelerated motion                      d) Moving with uniform velocity

74. Which of the following figures represent uniform motion of moving object correctly?



75. A body starting at a point, say A, reaches, say B, ahead in a straight line and returns back to A. Then there is:

- a) negative displacement   b) cannot be said   c) zero displacement   d) positive displacement
76. In which of the following cases of motion, the distance moved and the magnitude of displacement are equal?
- a) The earth is revolving around the Sun      b) The pendulum is moving to and fro  
c) A car is moving on a straight road      d) A car is moving in a circular path
77. When a body moves uniformly along the circle, then: -
- a) its speed changes but velocity remain the same  
b) both speed and velocity changes  
c) both speed and velocity remain the same  
d) its velocity changes but speed remain the same
78. For a uniformly accelerated body with initial and final velocities as  $u$  and  $v \text{ ms}^{-1}$ , the average velocity is:
- a)  $\frac{u-v}{2}$       b)  $\frac{v}{2}$       c)  $\frac{u+v}{2}$       d)  $\frac{u}{2}$
79. Which of the following is the characteristic of distance travelled by an object?
- a) It has only magnitude and no specific direction  
b) It has a magnitude as well as specific direction  
c) It can be zero  
d) The distance travelled by an object is less than the magnitude of the displacement of the object.
80. The displacement of the body can be
- a) positive      b) negative      c) zero      d) All of these

### **Section - C : Social Science**

- 81 Who got the right to vote in the France Constitution of 1791? [1]  
a) Men with property   b) Active citizens   c) Passive citizens   d) Monarchs
- 82 Which groups were obliged to render service to in the army or to participate in building roads? [1]  
a) Cattle Herders      b) Nomads      c) Peasants      d) All of these
- 83 Which of the following work were peasants obliged to perform? [1]  
a) To serve in the army      b) To participate in building roads  
c) To work in lord's house and field      d) All of these
- 84 The political instability of the Directory paved the way for the rise of which military dictator? [1]  
a) Robespierre      b) Dr. Guillotine      c) Napoleon Bonaparte      d) Louis XVI
- 85 The speech of Robespierre was printed in which newspaper? [1]  
a) Le Monde      b) Le Moniteur Universal      c) Le Figaro      d) La Croix
- 86 Who participated in revolts against increasing taxes and food scarcity? [1]  
a) Peasants and workers      b) Lawyers and Businessman

- c) Clergy and Nobility d) Monarchs and Citizens
- 87 1st estate comprised of which group? [1]  
a) Monarchs b) Big businessmen c) Nobility d) Clergy
- 88 **Two Treatises of Government** was written by: [1]  
a) Rousseau b) Montesquieu c) John Locke d) None of these
- 89 Passive citizens of France were: [1]  
a) Only men above 25 years b) Only propertied women  
c) Only propertied men d) Men and women who didn't vote
- 90 While drafting the constitution of 1791, what was the main objective of the National Assembly in France? [1]  
a) To give right of freedom to women b) To give equal right to vote  
c) To limit the powers of Monarch d) To restore the reforms made
- 91 The northernmost range of the Himalayas is known as: [1]  
a) Himachal b) Himadri c) None of these d) Shiwaliks
- 92 The region that renewed every year is ideal for intensive agriculture [1]  
a) Kankar b) Bhabar c) Khadar d) Terai
- 93 Which of the following peaks is the highest of the Western Ghats? [1]  
a) Javadi Hills b) Doda Betta c) Anai Mudi d) Mahendergiri
- 94 Which is the world's highest peak? [1]  
a) Sagarmatha b) Mountmath c) Sagar mount d) Everest
- 95 Which of the following is considered the ancient landmass on the earth's surface? [1]  
a) Deserts b) Northern plains c) Himalayas d) Peninsular Plateau
- 96 Height not exceeding 1500 metres will come under [1]  
a) Himadri b) Lesser Himalayas c) Shivalik d) Himachal
- 97 The highest peak in the Eastern Ghats is [1]  
a) Mahendragiri b) Kanchenjunga c) Anai Mudi d) Khasi
- 98 Which of the following landmass is a part of Peninsular Plateau? [1]  
a) Tethys b) Gondwana land c) Angara land d) None of these
- 99 According to the Plate Tectonics theory, the earth's crust is formed into how many major plates? [1]  
a) 7 b) 4 c) 6 d) 8
- 100 The world second highest peak is called [1]  
a) K2 b) Mount Everest c) Karakoram d) Aravali
- 101 Finance raised to operate a business is the [1]





- 115 Which country became democratic on 26 April 1994? [1]  
a) Asia                      b) South Africa                      c) USA                      d) China
- 116 The land of the law would not discriminate between citizens on the basis of caste, religion, and gender. Choose one word for this statement? [1]  
a) Sovereignty                      b) Liberty                      c) Justice                      d) Equality
- 117 India would adopt a form of government in which people would elect their rulers and hold them accountable. Choose one word for this? [1]  
a) Secular                      b) Liberty                      c) Equality                      d) Democratic
- 118 Among the following who was the chairman of Constitutional Drafting Committee? [1]  
a) Mahatma Gandhi    b) Rajendra Prasad    c) B.R. Ambedkar    d) C. Rajagopalachari
- 119 This term means that the head of the state, i.e. the President of India is an elected person and it is not a hereditary position. Choose the term from options. [1]  
a) Sovereignty                      b) Secular                      c) Fraternity                      d) Republic
- 120 Which country has the lengthiest Constitution in the world? [1]  
a) France                      b) Japan                      c) India                      d) United States

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