SAMPLE PAPER (CPA)
For VIIIth Moving

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Duration : 2 Hours   **Total Marks : 100**

Instructions :
- There will be two sections:
  Section A (Science) and Section B (Mathematics).
- Each section will have two parts :
  Part 1: 20 Concept based MCQs (1 mark each)
  Part 2 : 10 Critical thinking questions (3 marks each)
- Negative marking :
  For Part 1 of each section there is a negative marking of 0.25 marks for every incorrect answer. For Part 2 of each section there is a negative marking of 1 mark for every incorrect answer.
- Total marks : 100
- Time duration: 120 minutes for 60 questions.
- Use **black ball point pen** only..

SECTION A: SCIENCE (TOTAL MARKS: 50)

PART 1: CONCEPT-BASED QUESTIONS
(20 QUESTIONS- 1 MARK EACH)

Q.1) Which material is a poor conductor of heat?
(a) Copper   (b) Silver
(c) Aluminum   (d) Iron

Q.2) Which instrument is used to measure temperature?
(a) Voltmeter   (b) Ammeter
(c) Thermometer   (d) Barometer

Q.3) When light passes through a prism, it separates into different colors. This is called:
(a) Reflection   (b) Refraction
(c) Dispersion   (d) Diffraction

Q.4) What is the angle of incidence when the angle of reflection is 30 degrees in a plane mirror?
(a) 30 degrees   (b) 60 degrees
(c) 45 degrees   (d) 90 degrees

Q.5) Which part of the eye detects light and sends signals to the brain?
(a) Cornea   (b) Pupil
(c) Retina   (d) Lens

Q.6) The SI unit of time is:
(a) Meter   (b) Second
(c) Kilogram   (d) Joule

Q.7) The speed of an object in a given direction is called:
(a) Acceleration   (b) Velocity
(c) Momentum   (d) Inertia

Q.8) Which type of motion repeats itself after equal intervals of time?
(a) Periodic motion   (b) Circular motion
(c) Linear motion   (d) Oscillatory motion

Q.9) A closed path along which electric current flows is called a/an:
(a) Open circuit   (b) Parallel circuit
(c) Series circuit   (d) Electric circuit

Q.10) Which component is used to control the flow of current in a circuit?
(a) Resistor   (b) Capacitor
(c) Switch   (d) Diode

Q.11) What type of change involves the formation of a new substance?
(a) Physical change   (b) Chemical change
(c) Biological change   (d) Evolution

Q.12) The process of obtaining fibers from plants is known as:
(a) Weaving   (b) Spinning
(c) Cultivation   (d) Photosynthesis

Q.13) Animals that are active during the night are called:
(a) Carnivores   (b) Herbivores
(c) Nocturnal   (d) Diurnal

Q.14) What do we call the release of energy from food in living organisms?
(a) Respiration   (b) Digestion
(c) Circulation   (d) Photosynthesis

Q.15) Which of the following has the highest density?
(a) Wood   (b) Plastic
(c) Iron   (d) Air

Q.16) Which gas is produced when a metal reacts with an acid?
(a) Hydrogen   (b) Oxygen
(c) Carbon dioxide   (d) Nitrogen

Q.17) In which part of a flower does pollination take place?
(a) Petals   (b) Sepals
(c) Stamen   (d) Pistil

Q.18) In which type of mirror is the image always virtual and smaller than the object?
(a) Concave mirror   (b) Convex mirror
(c) Plane mirror   (d) Spherical mirror

Q.19) What is the process of removing impurities from a substance to make it pure?
(a) Filtration   (b) Evaporation
(c) Distillation   (d) Sublimation

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Q.20) Which part of the human digestive system releases digestive juices to break down food?
(a) Lungs   (b) Ribs
(c) Pancreas   (d) Small intestine

PART 2: CRITICAL THINKING QUESTIONS
(10 QUESTIONS - 3 MARKS EACH)

Q.21) A glass of water is left in a room. After some time, you notice water droplets forming on the outer surface of the glass. Explain why this happens.
(a) The glass is leaking
(b) The water inside the glass is condensing
(c) The water outside the glass is evaporating
(d) The glass is sweating due to heat

Q.22) You observe that the image of a tall tree is shorter than the actual tree when it is reflected in a puddle of water. Explain why this happens.
(a) The water distorts the image
(b) The angle of reflection is larger
(c) The water surface is uneven
(d) The image undergoes refraction in water

Q.23) Imagine a scenario where a car is moving in a circular path at a constant speed. Is the car's velocity constant? Why or why not?
(a) Yes, because the car's speed is constant
(b) No, because the car's direction is changing
(c) Yes, because circular motion doesn't affect velocity
(d) No, because circular motion doesn't affect velocity

Q.24) Consider a circuit with two resistors connected in series. If one resistor has a higher resistance than the other, which resistor will get hotter when a current passes through the circuit?
(a) The resistor with higher resistance
(b) The resistor with lower resistance
(c) Both resistors will get equally hot
(d) Temperature change in resistors is unrelated to resistance

Q.25) A plant kept in a dark room for several days was observed to have yellow leaves. What could be the reason for this?
(a) The plant has a disease
(b) The plant is receiving too much water
(c) The plant is unable to perform photosynthesis
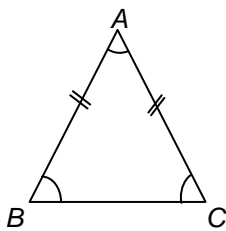(d) The plant is not receiving enough carbon dioxide

Q.26) A student mistakenly believes that all living organisms undergo photosynthesis. How would you correct this misconception?
(a) Explain that only plants undergo photosynthesis
(b) Explain that photosynthesis is not a vital process
(c) Clarify that plants perform photosynthesis, while other organisms perform respiration
(d) Confirm that the student's belief is accurate

Q.27) Two metal spheres, one made of aluminum and the other of copper, are placed in a furnace at the same temperature. After a while, which sphere will have a higher temperature?
(a) The aluminum sphere because it has a higher specific heat capacity
(b) The copper sphere because it has a lower specific heat capacity.
(c) Both spheres will have the same temperature.
(d) It depends on the furnace's temperature.

Q.28) When a beam of light travels from air into a glass prism, it bends. Explain why the degree of bending (angle of deviation) is different for different colors of light.
(a) Different colors of light have different speeds in air.
(b) Glass prisms have different refractive indices for different colors of light.
(c) The angle of incidence varies with color.
(d) It is a random phenomenon

Q.29) If a concave mirror forms a virtual, upright, and magnified image, where is the object located?
(a) Beyond the center of curvature
(b) Between the focus and the center of curvature
(c) At the center of curvature
(d) At the focus

Q.30) Imagine a scenario where an object moves with a constant velocity. Is it possible for the object to have a non-zero net force acting on it? Explain
(a) Yes, because velocity and force are independent
(b) No, because a constant velocity implies no net force.
(c) Yes, if the object is in space, where there is no friction
(d) It depends on the mass of the object

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PART 1: CONCEPT-BASED QUESTIONS
(20 QUESTIONS- 1 MARK EACH)

Q.31) What is the perpendicular bisector of a line segment?
(a) A line that intersects the segment at a right angle and divides it into two equal parts
(b) A line that is parallel to the segment.
(c) A line that does not intersect the segment.
(d) A line that intersects the segment at an acute angle.

Q.32) Which of the following is not a criteria for congruence of triangles?
(a) SAS (Side-Angle-Side)
(b) ASA (Angle-Side-Angle)
(c) SSA (Side-Side-Angle)
(d) SSS (Side-Side-Side)

Q.33) If two triangles have sides of equal lengths and angles of equal measures, they are said to be:
(a) Similar triangles
(b) Congruent triangles
(c) Right triangles
(d) Isosceles triangles

Q.34) What type of triangle has all sides of different lengths?
(a) Scalene triangle
(b) Isosceles triangle
(c) Equilateral triangle
(d) Right-angled triangle

Q.35) In an isosceles triangle, what are the measures of the base angles?
(a) They are always 60 degrees
(b) They are always 90 degrees
(c) They are always acute angles
(d) They are always obtuse angles

Q.36) What do you call two lines that do not intersect and are always equidistant from each other?
(a) Perpendicular lines   (b) Parallel lines
(c) Intersecting lines   (d) Collinear lines

Q.37) If you subtract 5 from both sides of the equation $2y + 5 = 15$, what is the new equation?
(a) $2y = 10$ (b) $2y = 15$
(c) $2y + 10 = 15$ (d) $2y - 5 = 10$

Q.38) What does the mode of a dataset represent?
(a) The most common data value
(b) The average of the data values
(c) The range of the data values
(d) The sum of the data values

Q.39) When you divide a whole number by a decimal less than 1, what happens to the quotient?
(a) It becomes smaller
(b) It becomes larger
(c) It remains the same
(d) cannot say.

Q.40) What is the result when you add a positive integer to a negative integer?
(a) It's always positive
(b) It's always negative
(c) It depends on their magnitudes and signs.
(d) It's always zero

Q.41) What is the formula to find the perimeter of a rectangle?
(a) Length × Width
(b) 2 × (Length + Width)
(c) Length + Width
(d) Length ÷ Width

Q.42) What is the coefficient of 'x' in the expression $3x + 2y - 5z$?
(a) 3
(b) 2
(c) −5
(d) Cannot be determined

Q.43) What is the result of 2^0?
(a) 0   (b) 1
(c) 2   (d) 4

Q.44) If you slice a cylinder parallel to its base, what shape do the cross-sections have?
(a) Circle   (b) Rectangle
(c) Triangle   (d) Hexagon

Q.45) If you subtract -7 from -3, what is the result?
(a) −10   (b) −4
(c) 4   (d) 10

Q.46) What do you call two angles whose sum is 90 degrees?
(a) Complementary angles
(b) Supplementary angles
(c) Vertical angles
(d) Obtuse angles

Q.47) In a ratio of 3:5, if the second term is 15, what is the first term?
(a) 5   (b) 6
(c) 9   (d) 12

Q.48) If two angles in a triangle are 45 degrees and 60 degrees, what is the measure of the third angle?
(a) 45 degrees   (b) 60 degrees
(c) 75 degrees   (d) 90 degrees

Q.49) When constructing an angle bisector, what does it divide the angle into?
(a) Three equal parts
(b) Two equal parts
(c) Four equal parts
(d) It depends on the angle

Q.50) What is the simplified form of $3x + 2x - 4x$?
(a) $5x$ (b) x
(c) x^2 (d) $-x$

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PART 2: CRITICAL THINKING QUESTIONS (10 QUESTIONS - 3 MARKS EACH)

Q.51) The distance from city A to city B on a map is 100cm. The scale of the map is 1 cm : 15 km . How far is city A from city B in kms?
(a) 150
(b) 1500
(c) 15000
(d) None of these

Q.52) Find the interest yield on principal of 50000Rs at the rate of 6% per annum in 9 months
(a) 2000
(b) 2250
(c) 2500
(d) None of these

Q.53) Find the median of following data set
$\dfrac{1}{2}, \dfrac{3}{5}, \dfrac{2}{3}, \dfrac{1}{4}, \dfrac{3}{2}$
(a) 3/5
(b) 2/3
(c) 1/2
(d) 3/2

Q.54) Eleven Boxes of white chalks are to be packed such that the first box has 1 packet and $\dfrac{1}{11}$ of 1 packet, second box has 2 packets and $\dfrac{1}{11}$ of a packet, third box has 3 packets and $\dfrac{1}{11}$ of a packet and so on. What are the total number of packets available?
(a) 60
(b) 67
(c) 70
(d) 77

Q.55) In an isosceles triangle $ABC, AB = BC$, $\angle ABC = 65°$. Find $\angle BAC$.

(a) 65
(b) 60
(c) 55
(d) 50

Q.56) If in a fraction, the numerator is less than denominator by 3. If the numerator is multiplied by 3 and denominator is increased by 20 then the fraction becomes 1/8, then find the fraction?
(a) 1/4
(b) 3/4
(c) 2/5
(d) 5/8

Q.57) If $a, 10, b, 40$ are in continued proportion. Find the value of a and b.
(a) 5, 20
(b) 5, 10
(c) 20, 5
(d) None of these

Q.58) The temperature of a liquid rises by 10°C on Monday, Tuesday and Wednesday and falls by 2°C on Thursday, Friday, Saturday & Sunday. If the temperature was 100°C on Monday what will be the temperature on Sunday?
(a) 122°C
(b) 120°C
(c) 114°C
(d) 112°C

Q.59) Ria has a total of 72 marbles. $\dfrac{1}{3}$rd of them are red; $\dfrac{1}{6}$th are blue; green marbles are same in number as red whereas the yellow ones are of $\dfrac{1}{3}$rd the blue marbles. Find the number of yellow marbles that Ria has.
(a) 4
(b) 6
(c) 8
(d) 12

Q.60) Mean of a given set of 5 numbers is 10. Out of 5 numbers if one number is removed, then mean becomes 12. Find the number which is removed.
(a) 2
(b) 50
(c) 48
(d) Data is insufficient

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