AUROUS ACADEMY
IIT-JEE | NEET | FOUNDATION

APRE 2024
(Aurous Potential Recognition Exam)

# Class – IX (Going to X)
# Duration : 2 hrs. | Maximum Marks : 180

## IMPORTANT INSTRUCTIONS

1. This Booklet is your Question Paper. DO NOT break seal of Booklet until the invigilator instructs to do so.
2. Fill your APRE Roll No. & Answer Sheet No. in the space provided on the cover page.
3. Please make sure that paper you received is of your class only.
4. 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 or blue ball point pen.
5. After breaking the Question Paper seal, check there are 10 pages in the booklet. This Question Paper contains 60 MCQs with 4 choices (Subjects: Physics: 15, Chemistry: 15, Maths: 15, Biology: 15)
6. Think wisely before darkening bubble as there is negative marking for wrong answer. Answer once marked by pen cannot be cancelled.
7. Marking Scheme:
   a. If darkened bubble is RIGHT answer: 3 Marks.
   b. If darkened bubble is WRONG answer: 1 Mark (Minus One Mark).
   c. If no bubble is darkened in any question: No Mark.
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.

**Name of the Candidate:** _____

**Registration Number:** _____

# PHYSICS

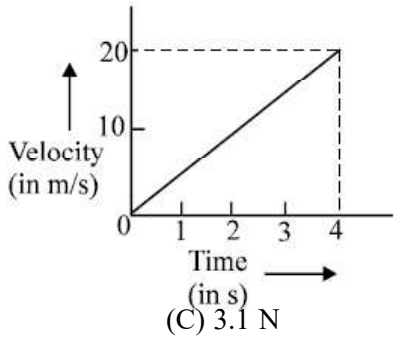
**1.** Vector quantities are those which have :
(A) Only direction (B) Only Magnitude
(C) Magnitude and direction both (D) None of these

**2.** A distance is always-
(A) shortest length between two points (B) path covered by an object between two points
(C) product of length and time (D) none of the above

**3.** A quantity has value of $-6.0\ ms^{-1}$. It may be the-
(A) Speed of a particle (B) Velocity of a particle
(C) Position of a particle (D) Displacement of a particle

**4.** A train starts from rest and moves with some acceleration attains a velocity of $40\ kmh^{-1}$ in 10 minutes. Its average acceleration will be :
(A) $18.5\ ms^{-2}$ (B) $1.85\ cm\ s^{-2}$ (C) $18.5\ cms^{-2}$ (D) $1.85\ m\ s^{-2}$

**5.** The velocity-time graph of a ball moving on the surface of floor is shown in fig. Calculate the force acting on the ball, if mass of the ball is 100 g.




(A) 1.6 N (B) 2.5 N (C) 3.1 N (D) 0.5 N

**6.** Distance time graph of a body is a straight line parallel to time axis. The body is
(A) moving with constant speed (B) moving with constant velocity
(C) at rest (D) moving in a straight line

**7.** The initial velocity of a particle is 10 m/s. It is moving with an acceleration of 4 m/s$^2$. The distance covered by the particle after 2s is
(A) 6 m (B) 18 m (C) 22 m (D) 28 m

**8.** 150 m long train crosses a bridge of length 250 m in 25 seconds. What is its velocity? (Assume train is moving with constant velocity)
(A) 20 m/s (B) 22 m/s (C) 16 m/s (D) 15 m/s

**9.** The linear momentum of an object is 250 g cm/s. If the velocity of the object is 5 m/s, then the mass of the object is
(A) 0.5 g (B) 5 kg (C) 0.5 mg (D) 5 mg

**10.** A cricket ball of mass 100 gm moving with a speed of 20 m/s is brought to rest by a player in 0.1s. Find the Average force applied by on the cricket ball.
(A) 8 N (B) 10 N (C) 5 N (D) 20 N

**11.** There is a rubber ball and a stone ball of same size. If both balls are at rest:
(A) rubber ball has more inertia than stone ball (B) stone ball has more inertia than rubber ball
(C) both have same inertia (D) none of the above.

**12.** Which of the following statement is not correct for an object moving along a straight path in an accelerated motion?
(A) Its speed keeps changing (B) Its velocity always changes
(C) It always goes away from the earth (D) A force is always acting on it

**13.** An object of mass 2 kg is sliding with a constant velocity of 4 m s–1 on a frictionless horizontal table. The force required to keep the object moving with the same velocity is
(A) 32 N (B) 0 N (C) 2 N (D) 8 N

**14.** A particle was at rest from 9.00 a.m. to 9.30 a.m. It moved at a uniform speed of 10 km/h from 9.30 a.m. to 10.00 a.m. Find the average speed between 9.15 a.m. and 10.00 a.m.
(A) 5 km/h (B) 10 km/h (C) 20/3 km/h (D) 10/3 km/h

**15.** Which of the following is correct in terms of motion
(A) $v = u + at$ (B) $v^2 = u^2 + 2as$ (C) $s = ut + \frac{1}{2}at^2$ (D) All of these

# CHEMISTRY

**16.** The type of clothes that are comfortable for us in summer is
(A) Silk clothes (B) Cotton clothes (C) Leather clothes (D) Rayon clothes

**17.** Anne filled 1L of air in a jar of capacity 750 ml. Volume of air in the jar is
(A) 1000 mL. (B) 875 mL. (C) 750 mL. (D) 250 mL.

**18.** The following that determines the state of the matter is
(A) pressure and temperature. (B) pressure and volume.
(C) volume and temperature. (D) temperature.

**19.** Energy of particles in steam at 373 K
(A) > Energy of particles in water at 373K. (B) < Energy of particles in water at 373 K.
(C) = Energy of particles in water at 373 K. (D) Energies cannot be compared.

**20.** Diffusion is a property of matter, based on
(A) Motion of its particles (B) Size of its particles
(C) Pressure (D) Temperature

**21.** The process of changing liquid into solid is called
(A) Evaporation (B) Freezing (C) Condensation (D) Sublimation

**22.** Identify the false statement among the following :
(A) Compound is homogeneous in nature.
(B) In compound constituents do not retain their properties.
(C) The constituents of a mixture can be separated by physical method.
(D) During formation of mixtures there is a change in the molecular composition.

**23.** The process used to separate oil and water is
(A) distillation (B) sublimation (C) separating funnel (D) chromatography

**24.** In which of the following the constituents are present in any ratio?
(A) Mixture (B) Compound (C) Solution (D) Colloid

**25.** The particle size is equal to or greater than 100 nm in
(A) copper sulphate + water (B) NaCl + Water
(C) starch in warm water (D) glass powder + water

**26.** Which one of the following is not a solution ?
(A) HCl reagent (B) Brass
(C) HCHO + water (D) Kerosene + water

**27.** Tyndall Effect in colloids is due to _____ .
(A) dispersion of light (B) merging of light rays
(C) scattering of light (D) convergence of light rays

**28.** Brownian motion is seen in
(A) aqueous solution of alum (B) blood
(C) cold drinks (D) ionic solutions

**29.** Alum is
(A) potassium aluminium sulphate. (B) potassium sodium sulphate.
(C) potassium aluminium silicate. (D) aluminium silicate.

**30.** In which of the following cases, cooking is very slow ?
(A) Pressure cooker at sea level (B) Pressure cooker at higher altitude
(C) Open vessel at sea level (D) Open vessel at higher altitude

# MATHEMATICS

**31.** The number $\frac{3-\sqrt{3}}{3+\sqrt{3}}$ is

(A) rational (B) irrational (C) both (D) can't say

**32.** The ascending order of the following surds $\sqrt[9]{2}, \sqrt[6]{3}, \sqrt[9]{4}$ is

(A) $\sqrt[9]{4}, \sqrt[6]{3}, \sqrt[3]{2}$ (B) $\sqrt[9]{4}, \sqrt[3]{2}, \sqrt[6]{3}$ (C) $\sqrt[3]{2}, \sqrt[6]{3}, \sqrt[9]{4}$ (D) $\sqrt[6]{3}, \sqrt[9]{4}, \sqrt[3]{2}$

**33.** The value of a and b if $f(x) = ax + b$ and $f(2) = 8$, $f(3) = 11$ is

(A) a = 3, b = –2 (B) a = –3, b = 2

(C) a = –3, b = –2 (D) a = 3, b = 2

**34.** If $\left(a+\frac{1}{a}\right)^2 = b$ then $a^3 + \frac{1}{a^3}$ is equal to

(A) $b^3$ (B) $b^{\frac{3}{2}}$ (C) $b^{\frac{3}{2}} - 3b^{\frac{1}{2}}$ (D) $b^{\frac{3}{2}} + 3b^{\frac{1}{2}}$

**35.** Factorise $x^2 + 3\sqrt{2}x + 4$

(A) $(x + 2\sqrt{2})(x + \sqrt{2})$ (B) $(x + 2\sqrt{2})(x - \sqrt{2})$

(C) $(x - 2\sqrt{2})(x + \sqrt{2})$ (D) $(x + 2\sqrt{2})(x - \sqrt{2})$

**36.** The distance of the point (3, 4) from x-axis is

(A) 3 unit (B) 7 units (C) 4 units (D) 5 units

**37.** The point which lies on y-axis at a distance of 5 units in the negative direction of y-axis is

(A) (0, 5) (B) (0, –5) (C) (5, 0) (D) (–5, 0)

**38.** A point both of whose co-ordinate are negative will lie in

(A) I quadrant (B) II quadrant (C) III quadrant (D) IV quadrant

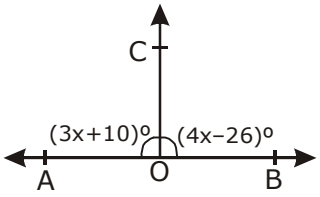
**39.** If two angles are complements of each other, then each angle is

(A) an acute angle (B) an obtuse angle (C) a right angle (D) a reflex angle

**40.** The complement of 72º

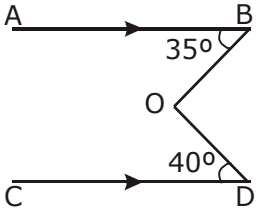
(A) 72º (B) 18º (C) 36 º (D) None of these

**41.** In the figure, AOB is a straight line.
If $\angle AOC = (3x+10)^\circ$ and $\angle BOC = (4x - 26)^\circ$, then $\angle BOC$ = ?




(A) 96º (B) 86º (C) 76º (D) 106º

**42.** In the given figure AB || CD and O is a point joined with B and D, as shown in the figure such that $\angle ABO = 35^\circ$ and $\angle CDO = 40^\circ$. Reflex $\angle BOD$=?




(A) 255º (B) 265º (C) 275º (D) 285º

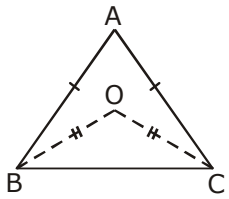
**43.** If $\Delta ABC \cong \Delta PQR$ and $\Delta ABC$ is not congruent to $\Delta RPQ$, then which of the following is not true?

(A) BC = PQ (B) AC = PR (C) BC = QR (D) AB = PQ

**44.** It is given that $\Delta ABC \cong \Delta FDE$ in which AB = 5 cm, $\angle B = 40^o$, $\angle A = 80^o$ and FD = 5 cm. Then, which of the following is true?

(A) $\angle D = 60^o$ (B) $\angle E = 60^o$ (C) $\angle F = 60^o$ (D) $\angle D = 80^o$

**45.** In the given figure, AB = AC and OB = OC. Then $\angle ABO : \angle ACO$ = ?




(A) 1 : 1 (B) 2 : 1 (C) 1 : 2 (D) None of these

# BIOLOGY

**46.** An unripe green fruit changes colour when it ripens. The reason being:
(A) Chromoplasts changes to chlorophyll (B) Chromoplasts changes to chromosomes
(C) Chromosomes changes to chromoplasts (D) Chloroplast changes to chromoplasts

**47.** Which plastids are colourless?
(A) Chromoplasts (B) Chloroplast (C) Leucoplasts (D) All of these

**48.** The phenomenon where cytoplasms shrink in a hypertonic medium is called:
(A) Frontolysis (B) Plasmolysis (C) Acidolysis (D) Allolysis

**49.** _____ is called the energy currency of the cell
(A) Endoplasmic reticulum (B) Oxygen
(C) ATP (D) Mitochondria

**50.** _____ is called the powerhouse of the cell
(A) Mitochondria (B) ATP (C) Lysosomes (D) Red blood cells

**51.** _____ coined the term "cell".
(A) Gorbachev (B) Himmler (C) Robert Hooke (D) Antonie van Leeuwenhoek

**52.** Which of the following statements is incorrect?
(A) Cytoplasm is also known as protoplasm
(B) Lysosomes are known as the suicide bags of the cell
(C) Mitochondria has its own DNA
(D) All of the above are incorrect

**53.** Where are the essential proteins and lipids required for cell membrane, manufactured?
(A) Lysosome (B) Chromosomes
(C) Endoplasmic reticulum (D) Mitochondria

**54.** One of the following is not true about Cardiac muscles
(A) They can be controlled
(B) Cells are bi-nucleate
(C) Found outside the heart such as the digestive tract
(D) All of these

**55.** _____ is not found in xylem tissues.
(A) Sieve tubes (B) Xylem parenchyma
(C) Tracheids (D) Vessels

**56.** Rapid elongation of a bamboo stem is due to
(A) Lateral meristem (B) Intercalary meristem
(C) Apical meristem (D) Cambium

**57.** The Nodes of Ranvier are found in
(A) Nerve cells (B) Heart cells (C) Liver cells (D) All of these

**58.** Which of the followig is connective tissue?
(A) Ligament (B) Tendon (C) Blood (D) All of these

**59.** Which of the following statements are correct about meristematic tissues?
(A) Composed of cells that are incapable of cell division
(B) Composed of a single type of cell
(C) It is composed of cells that are able to perform cell division
(D) All the above

**60.** Lysosomes are called suicide bags because
(A) It causes the cell to break its cell membrane, causing death
(B) It kills the surrounding cells by releasing enzymes
(C) The enzymes are capable of digesting cells
(D) All of the above

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