PRAGYAN

Class – IX (Going to X) – Half Syllabus
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 7 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. The value of G depends on
   (A) None of these
   (B) Masses of the bodies
   (C) Distance between the bodies
   (D) Some other masses kept nearby

2. Which of the is true for displacement?
   A. It cannot be Zero
   B. Its magnitude is greater than the distance travelled by the object
   C. It's the shortest distance between initial & final position
   D. It is a vector quantity
   (A) A, B are correct
   (B) C and D are correct
   (C) B and C are correct
   (D) A and B are correct

3. How much net force acts on body whose momentum is constant (i.e. = constant)?
   (A) Zero
   (B) None
   (C) p/2t
   (D) 2p/t

4. A force has
   (A) Direction only
   (B) Magnitude only
   (C) Both A and B
   (D) None of these

5. Inverse square law means force is proportional to?
   (A) $1/r^3$
   (B) $1/r^4$
   (C) $1/r^2$
   (D) $1/r$

6. Principle of rocket is based on Newton's ...... law of motion.
   (A) First
   (B) Second
   (C) Third
   (D) None

7. The particle is moving with constant speed
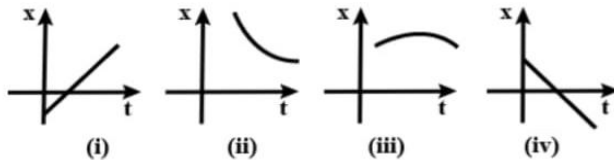
   (A) In graphs (i) and (iii)
   (B) In graphs (i) and (iv)
   (C) In graphs (i) and (ii)
   (D) In graphs (i)

8. A bullet weighing 50 gram leaves the gun with a velocity of 30m/s. The ratio of the momentum of bullet and gun after firing is:
   (A) 1:1
   (B) 1:2
   (C) 2:1
   (D) 1:3

9. A particle has a velocity u towards east at t = 0. Its acceleration is towards west and is constant, Let X_A and X_B be the magnitude of displacements in the first 10 seconds and the next 10 seconds.
   (A) $X_A < X_B$
   (B) $X_A = X_B$
   (C) $X_A > X_B$
   (D)The information is insufficient to decide the relation of XA and XB.

10. A force of 50 N is required to push a car on a level road with constant speed of 10 ms^{-1}. The mass of the car is 500 kg. What forces should be applied to make the car accelerate at 1 ms^{-2}.
    (A) 450 N
    (B) 500 N
    (C) 550 N
    (D) 2500 N

11. A body dropped freely has covered (16/25)th of the total distance in the last second. Its total time of fall is
    (A) 2.5 s
    (B) 5 s
    (C) 7.5 s
    (D) 1s

12. A train is travelling at a speed of 108 km/h. Brakes are applied so as to produce a uniform retardation of 1 m/s². Find how far the train will go before it is brought to rest :
(A) 800 m   (B) 450 m   (C) 1000 m   (D) 1050 m

13. A stone is dropped from some height, then the distance travelled by stone in 4th, 5th, 6th seconds are in the ratio of
(A) 4:5:6   (B) 16:25:36   (C) 36:25:16   (D) 7:9:11

14. If F is the force between two bodies of masses m_1 and m_2 at certain separation, then what is the force between $\sqrt{5}m_1$ and $\sqrt{3}m_2$ at the same separation?
(A) $\sqrt{5}F$ (B) $F/\sqrt{15}$ (C) $\sqrt{15}F$ (D) F

15. A particle is projected up with a velocity of 20 m s^{-1} from a tower of height 25 m. Its velocity on reaching the ground is ms^{-1}
(A) 20   (B) 40   (C) 30   (D) 10

CHEMISTRY

16. Which of the following has the strongest interparticle force of attraction at room temperature?
(A) Nitrogen   (B) Mercury   (C) Iron   (D) Chalk

17. You accidentally release a balloon filled with gas inside a room. What will most likely happen to the gas inside the balloon once it's punctured and released into the room?
(A) The gas will form a solid cube on the floor.
(B) The gas will condense into a small drop of liquid in one corner.
(C) The gas will escape from the room through the walls.
(D) The gas will spread out evenly, filling the entire room.

18. On increasing the temperature of the liquid, the rate of evaporation
(A) Increases   (B) Decreases   (C) No change   (D) None of these

19. Your spaceship encounters a strange alien planet with oceans of flowing substances and swirling clouds in the sky. The alien guide tells you that both the oceans and the clouds are made of "fluids." What is the most accurate description of what the alien is referring to?
(A) Only substances that can be solidified.
(B) Only liquids, like water.
(C) Both liquids and gases, which can flow and take the shape of their container.
(D) Only gases, because they can float freely.

20. The temperature at which a solid change into liquid at atmospheric pressure is called
(A) Melting point   (B) Boiling point   (C) Diffusion   (D) Evaporation

21. Convert the temperature of 373°C to the Kelvin scale?
(A) 646 K   (B) 546 K   (C) 300 K   (D) 500 K

22. Match the following and choose the correct answer :-

(i) Solid	(a)	Super energetic particles
(ii) Liquid	(b)	No shape nor fixed volume at a given pressure
(iii) Gas	(c)	Has definite shape
(iv) Plasma	(d)	Definite shape with less molecular forces than that in solids

(A) (i) – a, (ii) – b, (iii) – c, (iv) – d
(B) (i) – c, (ii) – d, (iii) – b, (iv) – a
(C) (i) – c, (ii) – d, (iii) – a, (iv) – b
(D) (i) – a, (ii) – d, (iii) – b, (iv) – c

23. One chilly morning, you notice tiny droplets of water suspended in the air around you, making everything look hazy. This natural phenomenon occurs when water vapor condenses on tiny particles like dust in the air. What is this hazy formation called?
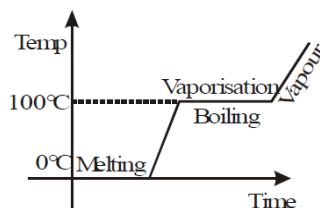(A) Clouds forming inside a bottle
(B) A sudden burst of rain
(C) Mist, formed by water particles condensing on dust
(D) Ice crystals freezing mid-air

24. In an experiment of conversion of ice into water and water into vapour, observations were recorded and a graph plotted for temperature against time as shown below. From the graph it can be concluded that: -

(A) Ice takes time to heat up to 0°C
(B) During melting and boiling temperature does not rise
(C) Process of boiling takes longer time than the process of melting
(D) All the above

25. Milk is a _____ solution while vinegar is a _____ solution.
(A) suspension, colloidal   (B) colloidal, suspension
(C) true, colloidal   (D) colloidal, true

26. While performing a magic trick in your science lab, you shine a beam of light through a glass of milk, and surprisingly, the light beam becomes visible as it passes through! What scientific phenomenon is responsible for this "magic trick"?
(A) The milk absorbs all the light
(B) The milk turns into a solid and reflects the light
(C) The scattering of light in the colloidal particles of the milk
(D) The light vanishes as it passes through the liquid

27. Tyndall effect is observed in:
(A) Solution   (B) Precipitate   (C) Vapour   (D) Sol

28. Amalgam is a solution of:
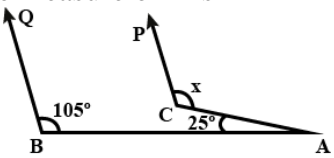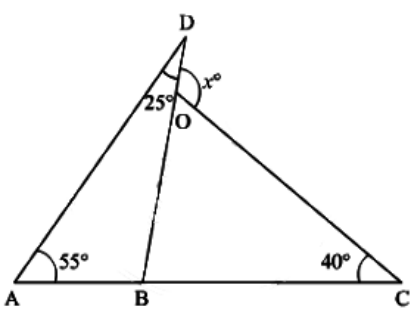(A) Solid in solid   (B) Solid in liquid   (C) Liquid in solid   (D) Liquid in liquid

29. Milk of Magnesia is an example of:
(A) Emulsion   (B) True solution   (C) Colloid   (D) Suspension

30. Which of the following is an example of a mixture?
(A) Sugar   (B) Brass   (C) CO_2 (D) NO_2

MATHEMATICS

31. If n is a natural number, then $\sqrt{n}$ is
(A) always a natural number
(B) always a rational number
(C) always an irrational number
(D) sometimes a natural number and sometimes an irrational number

32. The number of consecutive zeros is $2^3 \times 3^4 \times 5^4 \times 7$, is
(A) 3   (B) 2   (C) 4   (D) 5

33. x+1 is a factor of the polynomial
(A) x^3+x^2-x+1 (B) x^3+x^2+x+1 (C) $x^4+x^3+x^2+1$ (D) $x^4+3x^3+3x^2+x+1$

34. If $x + \dfrac{1}{x} = 2$, then $x^3 + 1/x^3 =$
(A) 64   (B) 14   (C) 8   (D) 2

35. $\dfrac{(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3}{(a-b)^3+(b-c)^3+(c-a)^3}$
(A) 3 (a+b) (b+c) (c+a)   (B) 3 (a-b) (b-c) (c-a)
(C) (a-b) (b-c) (c-a)   (D) (a+b) (b+c) (c+a)

36. If (4, 19) is a solution of the equation y=ax+3, then a =
(A) 3   (B) 4   (C) 5   (D) 6

37. If $3x = a + b + c$, then the value of $(x - a)^3 + (x - b)^3 + (x - c)^3 - 3(x - a)(a - b)(x - c)$, is
(A) a+b+c   (B) (a-b) (b-c) (c-a)   (C) 0   (D) None of these

38. The distance between the graph of the equations x = -3 and x=2 is
(A) 1   (B) 2   (C) 3   (D) 5

39. The perpendicular distance of the point P (4,3) from y-axis is
(A) 4   (B) 3   (C) 5   (D) None of these

40. The base of an isosceles right triangle is 30 cm. Its area is
(A) 225 cm²   (B) $225\sqrt{3}$ cm²   (C) $24\sqrt{5}$ cm²   (D) 63 cm²

41. In the given figure CP || BQ, then the measure of x is

(A) 130°   (B) 105°   (C) 175°   (D) 125°

42. If $\triangle ABC \cong \triangle ACB$, then $\triangle ABC$ is isosceles with
(A) AB = AC   (B) AB = BC   (C) AC = BC   (D) None of these

43. The side BC of ∆ABC is produced to a point D. The bisector of ∠A meets side BC in L. if ∠ABC=30° and ∠ACD = 115°, then ∠ALC=

(A) 85°   (B) $72\frac{1}{2}°$ (C) 145°   (D) None of these

44. In the given figure, the value of x is

(A) 65°   (B) 80°   (C) 95°   (D) 120°

45. If all the three angles of a triangle are equal, then each one of them is equal to

(A) 90°   (B) 45°   (C) 60°   (D) 30°

BIOLOGY

46. "Cell arises from pre-existing cell" was stated by

(A) Haeckel   (B) Virchow   (C) Hooke   (D) Schleiden

47. Study of cell is known as

(A) Mylogy   (B) Protology   (C) Cytology   (D) Microbiology

48. Which of following is the smallest known cell:

(A) Virus   (B) Yeast   (C) Mycoplasma   (D) Bacteriophage

49. The radiant energy of sunlight is converted to chemical energy and stored as

(A) AMP   (B) ADP   (C) ATP   (D) APP

50. The common feature amongst nucleus, chloroplast and mitochondrion is

(A) DNA   (B) Lamellae   (C) Cristae   (D) All of these

51. **Assertion:** Robert Hooke (1665) discovered cells in thin slice of cork
Reason: He name, them cells as they appeared like small chambers.

(A) Both assertion (A) and reason (R) are true and reason is correct explanation of assertion

(B) Both assertion (A) and reason (R) are true but reason is not the correct explanation of the assertion

(C) Assertion (A) is true but reason (R) is false

(D) Assertion (A) is false but reason (R) is true

52. Well defined nucleus is absent in:

(A) Plant cell   (B) Animal cell   (C) Eukaryotic cell   (D) Prokaryotic cell

53. Animal cell is limited by-

(A) Plasma membrane   (B) Shell membrane
(C) Cell wall   (D) Basement membrane

54. **Assertion:** Plants, being stationary have musculo-skeletal tissue.
Reason: Animals being mobile have living supportive tissue.

(A) Both assertion (A) and reason (R) are true and reason is correct explanation of assertion

(B) Both assertion (A) and reason (R) are true but reason is not the correct explanation of the assertion

(C) Assertion (A) is true but reason (R) is false

(D) Assertion (A) is false but reason (R) is true

55. Akriti was given a slide of parenchyma. She concluded that parenchyma cells possess

(A) Central cytoplasm and peripheral vacuole

(B) Central vacuole and peripheral cytoplasm

(C) Thickened cell walls

(D) No cytoplasm

56. A student observed a prepared slide and reported that the cells are long, elongated and thick-walled with no intercellular spaces. It is

(A) Parenchyma   (B) Sclerenchyma   (C) Striped muscle   (D) Nerve cell

57. Contractile proteins are found in

(A) Bones   (B) Blood   (C) Muscles   (D) Cartilage

58. Striated muscles are so called as

(A) They are cylindrical in shape

(B) They are multinucleate

(C) They have nucleus at the periphery

(D) They have alternate dark and light bands

59. Nerve cell does not contain

(A) Axon   (B) Nerve endings   (C) Tendons   (D) Dendrites

60. Which of the following cells is found in the cartilaginous tissue of the body?

(A) Mast cells   (B) Basophils   (C) Osteocytes   (D) Chondrocytes

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