**AGA KHAN UNIVERSITY EXAMINATION BOARD**

**SECONDARY SCHOOL CERTIFICATE**

**CLASS IX**

**ANNUAL EXAMINATIONS (THEORY) 2025**

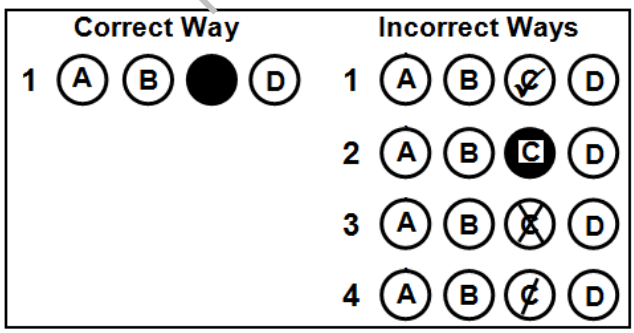
**Physics Paper I**

**Time: 1 hour 10 minutes Marks: 40**



**INSTRUCTIONS**

1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 40 only.
4. In each question there are four choices A, B, C, D. Choose ONE. On the answer grid black out the circle for your choice with a pencil as shown below.




**Candidate's Signature**

5. If you want to change your answer, ERASE the first answer completely with a rubber, before blacking out a new circle.
6. DO NOT write anything in the answer grid. The computer only records what is in the circles.
7. You may use a simple calculator if you wish.

1. Which of the following is a base physical quantity?

   A. Time
   B. Force
   C. Density
   D. Velocity

2. The number 0.012345678 can be represented in scientific notation as

   A. $12.345678 \times 10^{2}$
   B. $1.2345678 \times 10^{2}$
   C. $1.2345678 \times 10^{-2}$
   D. $12.345678 \times 10^{-2}$

3. All of the following quantities can be measured by using Vernier callipers EXCEPT

   A. depth.
   B. length.
   C. weight.
   D. diametre.

4. The number of significant figures in $(25.01)^{2}$ is

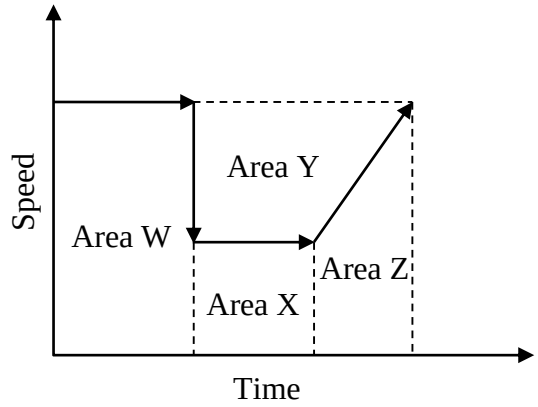
   A. 2
   B. 3
   C. 4
   D. 5

5. In a classroom, a student got up from his/ her desk and walked 3 m ahead towards his/ her friend's desk. He/ she collected a book and walked 3 m back to his/ her own desk.

   The total displacement of the student would be

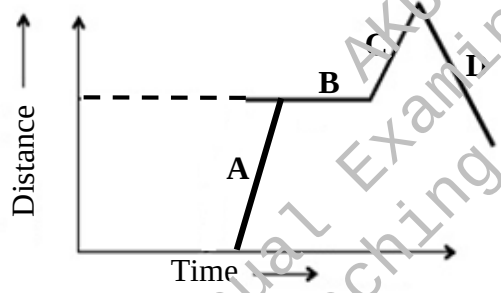
   A. 0 m.
   B. 3 m.
   C. 6 m.
   D. 9 m.

6. In the given speed-time graph, the sum of areas representing the total distance covered by a body is




A. W + Y + Z
B. W + X + Y
C. W + X + Z
D. W + X + Y + Z

7. In the given distance-time graph, the line that represents a body in rest position is




8. All three equations of motion are applicable on bodies having uniform

A. speed.
B. velocity.
C. momentum.
D. acceleration.

9. A cricket ball is hit in such a way that it travels vertically upward.

What will be its initial velocity, if it attains the maximum height in 3s?

(**Note**: Take the value of acceleration due to gravity as 9.8 $m/s^2$.)

A. 3.2 m/s.
B. 6.8 m/s.
C. 12.8 m/s.
D. 29.4 m/s.

10. A force of 100 N acts on an object for 10 s. If the velocity of the object is 50 m/s, then the amount of momentum in the object will be

    A. 10 Ns.
    B. 50 Ns.
    C. 100 Ns.
    D. 1000 Ns.

11. If a body is taken to the surface of the moon, then which of the following physical quantities of the body will change?

    A. Mass
    B. Length
    C. Weight
    D. Density

12. In a tug of war, an inextensible rope is pulled by two teams in opposite direction over a central line. Each team has four players and each player is applying 10 N force on the rope.

    During the game, if the rope is balanced over the central line, then the tension in the rope will be

    A. 0 N.
    B. 20 N.
    C. 40 N.
    D. 80 N.

13. A passenger getting down from a moving bus falls forward. This is due to the

    A. inertia.
    B. couple.
    C. friction.
    D. moment.

14. If an object moves with the help of wheels from one point to another point on a rough surface, then the type of friction between wheels and surface is

    A. static friction.
    B. rolling friction.
    C. sliding friction.
    D. kinetic friction.

15. All of the following are the examples of turning effect of force EXCEPT

| | | | |
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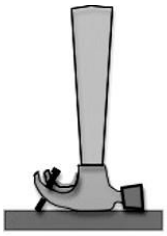
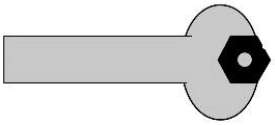
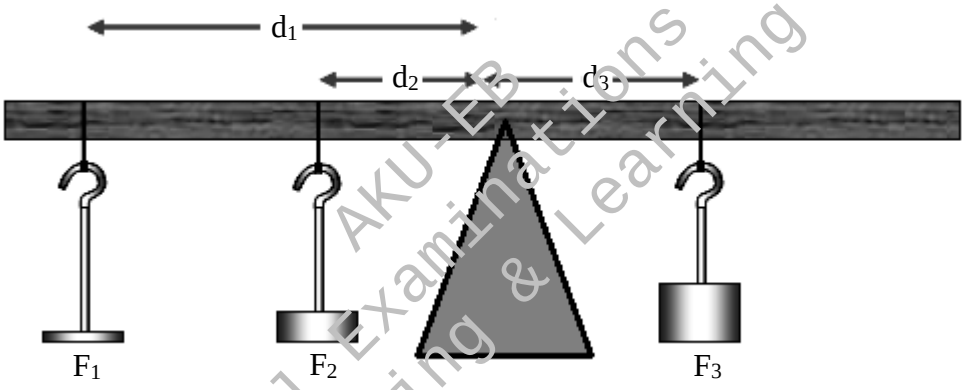
|  |  |  |  |
| A | B | C | D |

16. In the given figure, a uniform metre rod is balanced at its centre by a fulcrum.

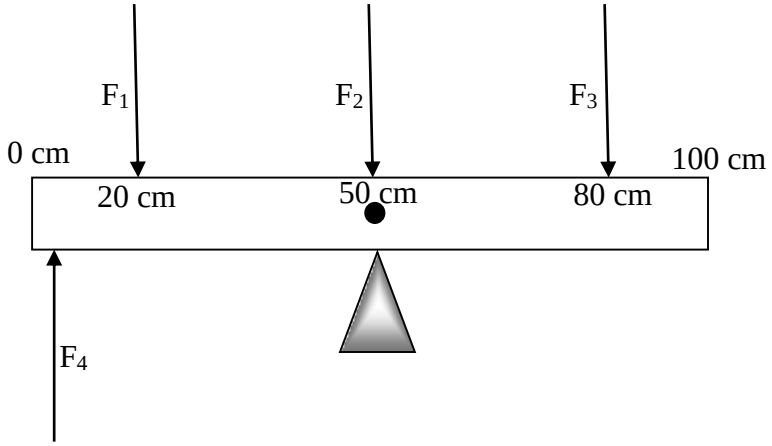



The distances $d_1$, $d_2$ and $d_3$ are equal to 10 cm, 2 cm and 5 cm respectively. If ($F_1$) and ($F_2$) are equal to 2 N and 5 N respectively, then the magnitude of ($F_3$) will be

A. 2 N.
B. 4 N.
C. 6 N.
D. 10 N.

17. Four different forces ($F_1$, $F_2$, $F_3$ and $F_4$) of the same magnitude are acting on the given metre scale.

Which forces produces the maximum torque?




A. $F_1$
B. $F_2$
C. $F_3$
D. $F_4$

18. A point where the whole weight of a body acts vertically downward is called the

A. centre of mass.
B. point of contact.
C. centre of gravity.
D. point of applied force.

19. Which of the following correctly describes the direction of the gravitational field at a point?

A. It is parallel to the object that creates the field.
B. It is perpendicular to the object that creates the field.
C. It always points away the object that creates the field.
D. It always points towards the object that creates the field.

20. If the gravitational acceleration on the surface of the Earth is given, then the additional information required to determine the mass of the Earth using the law of gravitation would be

I. radius of the Earth
II. density of the Earth
III. universal gravitational constant (G)

A. I only.
B. II only.
C. I and III.
D. II and III.

21. If an astronaut attains a height equal to the radius of the Earth, then his weight related to the Earth surface will become

A. half.
B. twice.
C. one-third.
D. one-fourth.

22. An artificial satellite is revolving around the Earth in a specific orbit. ($F_1$) is the magnitude of the force exerted by the Earth on a satellite and ($F_2$) is the magnitude of the force exerted by the satellite on the Earth.

Which of the following statements is TRUE for the given condition?

A. $F_1 = F_2$
B. $F_1 = -F_2$
C. $F_1 < F_2$
D. $F_1 > F_2$

23. A traffic police car lifter lifts a car that was parked in a no parking area. The lifter lifts the car upto 0.5 m in the upward direction and the applied force is 5000 N. The work done on the car will be

A. 2500 J.
B. 5000 J.
C. 10000 J.
D. 25000 J.

24. During a football match, a strong wind shakes and loose a football of mass 0.40 kg that was stuck in a tree at a height of 20 m. Ignoring air resistance, the potential energy of the football when it was stuck in the tree was

(**Note**: Take the value of acceleration due to gravity as 9.8 $m/s^2$.)

A. 19.2 J.
B. 31.4 J.
C. 39.2 J.
D. 78.4 J.

25. All of the following are the examples of renewable energy sources EXCEPT

A. solar energy.
B. wind energy.
C. nuclear energy.
D. geothermal energy.

26. The kinetic energy of an object depends on

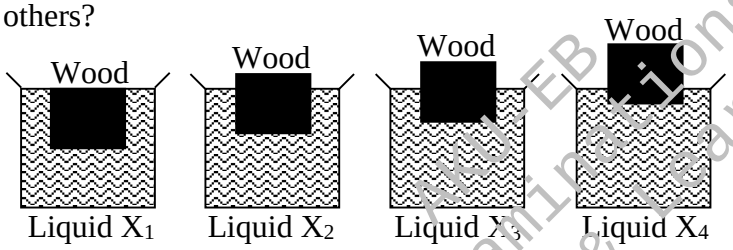
A. density.
B. velocity.
C. acceleration.
D. temperature.

27. If the mass of an elevator is 2000 kg, then the work done to raise the elevator to a height of 50 m in 20 seconds will be

(**Note**: Take the value of acceleration due to gravity 'g' as 9.8 $m/s^2$.)

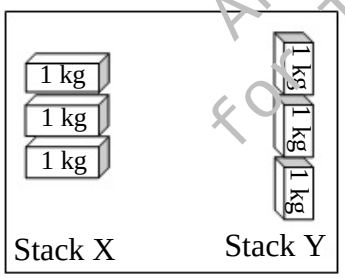
A. 4 J.
B. 400 J.
C. 98000 J.
D. 980000 J.

28. A piece of wood is shown floating in four different liquids. Which liquid is denser than the others?




A. $X_1$
B. $X_2$
C. $X_3$
D. $X_4$

29. Consider the given figure in which bricks of 1 kg are stacked in different positions.




Comparing stack X with the stack Y, the CORRECT statement is that

A. force of stack Y is greater than stack X.
B. force of stack X is greater than stack Y.
C. pressure of stack X is greater than stack Y.
D. pressure of stack Y is greater than stack X.

30. As compared to sea level, the atmospheric pressure on mountains is

A. equal.
B. lower.
C. higher.
D. unpredictable.

31. The height of Tarbela dam is 143 m.

Assuming that the dam is filled with water and the density of water is 1000 kg/m$^3$. The value of acceleration due to gravity is 10 m/s$^2$, the pressure exerted by water at the base of the dam will be

A. $1.43 \times 10^4$ Pa.
B. $1.43 \times 10^5$ Pa.
C. $1.43 \times 10^6$ Pa.
D. $1.43 \times 10^7$ Pa.

32. The weight of a ship is equal or less than the upthrust of the water acting on it.

The statement that will be TRUE for the ship is that it will

A. sink into the water.
B. float on the surface of water.
C. initially float but then slowly sink into the water.
D. initially sink but then slowly come to the surface of water.

33. The body temperature of a patient is recorded as 101$^o$F. This temperature is equal to

A. 38.3$^o$C.
B. 43.3$^o$C.
C. 57.0$^o$C.
D. 69.0$^o$C.

34. If 4 kg of water cools from 80$^o$C to 30$^o$C, it loses energy

(**Note**: Take the specific heat of water as 4.2 J/g°C.)

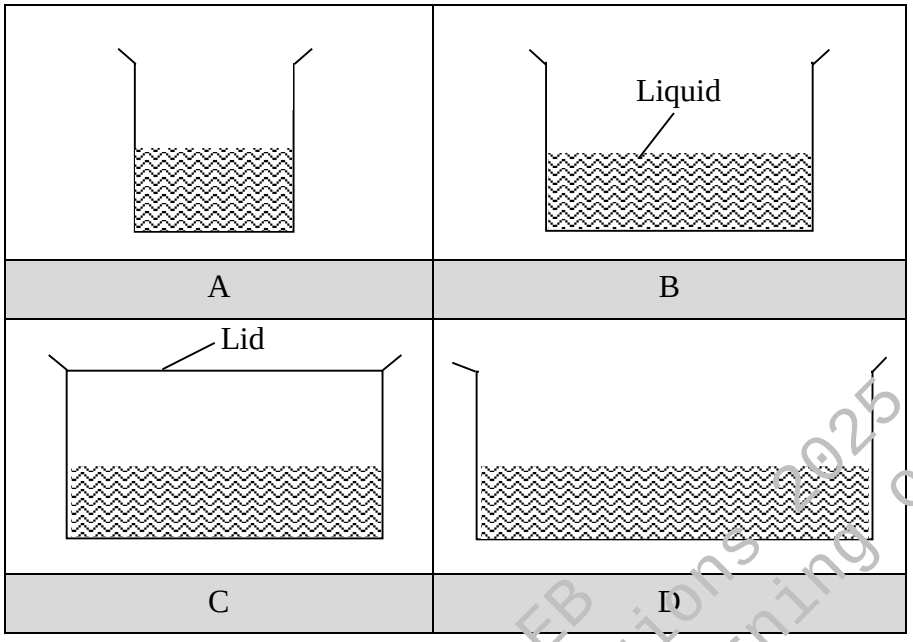
A. 840 J.
B. 8400 J.
C. 84000 J.
D. 840000 J.

35. The amount of heat required to convert 100 g of ice at 0°C to water at 0°C is

(**Note:** Take the latent heat of fusion of ice as 334 J/g.)

A. 33.4 J.
B. 334 J.
C. 3340 J.
D. 33400 J.

36. The vessel that will cause a liquid to evaporate most quickly when containing equal amounts of the same liquid is




37. All of the following show transfer of heat by convection EXCEPT the use of

A. fans to dry off sweat.
B. hot air to fly off air balloons.
C. gas heaters to heat up rooms.
D. heating pads to relax muscles.

38. The vacuum in the thermos bottle prevents heat transfer by

I. radiation
II. conduction
III. convection

A. I only.
B. II only.
C. I and III.
D. II and III.

39. The characteristic that should be present in a surface to protect it from infrared radiation is

A. good absorbers and good emitters.
B. good absorbers and poor emitters.
C. poor absorbers and good emitters.
D. poor absorbers and poor emitters.

40. The surface that is the good radiator of heat is

A. black.
B. white.
C. green.
D. silver.

END OF PAPER

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