

AGA KHAN UNIVERSITY EXAMINATION BOARD
SECONDARY SCHOOL CERTIFICATE
CLASS IX
MODEL EXAMINATION PAPER 2023 AND ONWARDS
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.

Correct Way	Incorrect Ways
1 ☐ A ☐ B ☒ ☐ D	1 ☐ A ☐ B ☒ ☐ D
	2 ☐ A ☐ B ☒ C ☐ D
	3 ☐ A ☐ B ☒ ☐ D
	4 ☐ A ☐ B ☒ ☐ D

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.

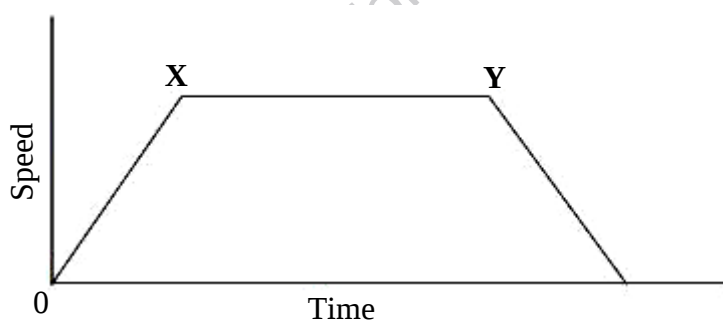
1. If the volume of one cube is 1.76 cm^3 , then the volume of twenty-one such cubes rounded off to three significant figures is
 - A. 36.0 cm^3 .
 - B. 36.9 cm^3 .
 - C. 36.96 cm^3 .
 - D. 37.0 cm^3 .
2. The number 123.4 can also be written in scientific notation as
 - A. 0.1234×10^3
 - B. 1.234×10^{-2}
 - C. 1.234×10^2
 - D. 12.34×10^1
3. The prefix used for the multiple value of 10^{-9} is
 - A. atto.
 - B. pico.
 - C. nano.
 - D. femto.
4. Which of the following instruments is used to measure the internal diameter of a pipe?
 - A. Metre rule
 - B. Screw gauge
 - C. Vernier callipers
 - D. Measuring cylinder
5. All of the following are the scalar quantities EXCEPT
 - A. time.
 - B. mass.
 - C. distance.
 - D. velocity.
6. A child drops a tennis ball from a height of 10 m. The velocity of the ball just before it strikes the ground will be
(Note: The value of acceleration due to gravity is 9.8 m/s^2 .)
 - A. 14.0 m/s .
 - B. 19.8 m/s .
 - C. 21.8 m/s .
 - D. 98.0 m/s .

7. The given table shows the distance covered by a car on a straight road in four different segments.

Segment	Distance Covered (m)
I	0-10
II	11-22
III	23-35
IV	36-49

If the car takes same interval of time to cover all four segments, then the car

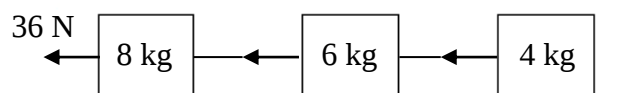
- A. is accelerating.
 B. is decelerating.
 C. has uniform velocity.
 D. comes to rest after each segment.
8. If a force of 10 N is acting on a body along the x-axis, then the value of this force acting on the y-axis will be
- A. 0 N.
 B. 5 N.
 C. 10 N.
 D. 20 N.
9. Consider the given speed-time graph.



The speed of an object from point X to Y is

- A. decreasing.
 B. increasing.
 C. uniform.
 D. zero.

10. A 36 N force pulls a system of three masses on a horizontal frictionless surface as shown in the given figure. The acceleration of this system of masses is



- A. 0.5 m/s^2 .
 B. 2 m/s^2 .
 C. 5 m/s^2 .
 D. 18 m/s^2 .
11. An astronaut is sitting in a rocket on Earth which is ready to launch to the Moon.

When the astronaut will reach the Moon, his/ her weight and mass would

	Weight	Mass
A	Increase	remain the same
B	remain the same	increase
C	Decrease	remain the same
D	remain the same	decrease

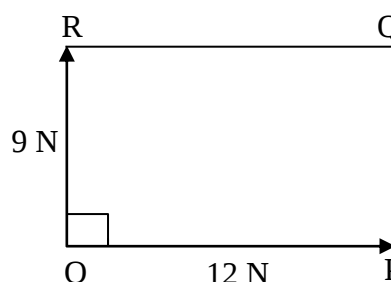
12. How much centripetal force is needed to move a body of mass 10 kg in a circle of radius 20 m with a speed of 3 m/s?
- A. 1.5 N.
 B. 4.5 N.
 C. 13 N.
 D. 33 N.
13. If a body of mass 10 kg is placed on the surface of the Earth, then the pull of the Earth on the body will be

(Note: The value of acceleration due to gravity is 9.8 m/s^2 .)

- A. 0.98 N.
 B. 19.8 N.
 C. 98 N.
 D. 100 N.
14. It is difficult to drive a car on an oily road because the frictional force
- A. increases.
 B. decreases.
 C. becomes zero.
 D. remains unchanged.

15. Two forces act at the right angle at point O, as shown in the given figure. What will be the magnitude and direction of the resultant force?

	Magnitude	Direction
A	15 N	along $\overrightarrow{OQ}$
B	15 N	along $\overrightarrow{PR}$
C	21 N	along $\overrightarrow{OQ}$
D	21 N	along $\overrightarrow{PR}$



16. A sports racing car is made stable by
- raising its height.
 - increasing its speed.
 - decreasing its width.
 - lowering its centre of gravity.
17. The perpendicular distance between axis of rotation and the line of action of force is called
- momentum.
 - acceleration.
 - moment arm.
 - displacement.
18. After disturbance, if a body comes to rest and its centre of gravity remains unchanged, then this state of the body is/ are identified as
- stable equilibrium
 - unstable equilibrium
 - neutral equilibrium
- I only.
 - III only.
 - I and III.
 - II and III.
19. Let suppose, a hole is drilled through the Earth along the diameter and a stone is dropped into it. Suppose when the stone reaches the Earth's centre keeping same size and shape, it will have constant
- mass.
 - weight.
 - momentum.
 - acceleration.

20. A satellite is revolving around the Earth in a circular orbit with velocity v .
If the gravitational force between the satellite and the Earth suddenly disappears, then the velocity of the satellite will be
- A. 0
 - B. $\frac{1}{2} v$
 - C. v
 - D. $2v$
21. If a planet comes closer to the Sun, then the planet will
- A. orbit faster.
 - B. orbit slower.
 - C. fall into the Sun.
 - D. keep moving with the same speed.
22. The gravitational force between two objects is directly proportional to the
- A. sum of their masses.
 - B. product of their masses.
 - C. difference between their masses.
 - D. square of the distance between them.
23. A car travels a distance of 150 m in the direction of a constant force of 50 N. The work done on the car is
- A. 3 J.
 - B. 100 J.
 - C. 200 J.
 - D. 7500 J.
24. A car has stopped after screeching to avoid a crash with a van.
With reference to the given situation, the kinetic energy of the car will then be converted into
- A. sound energy only.
 - B. heat and sound energy.
 - C. heat and potential energy.
 - D. potential and sound energy.
25. If a loading truck has an output of 3600 J and its efficiency is 50%, then the input provided to the truck will be
- A. 18 J.
 - B. 72 J.
 - C. 7200 J.
 - D. 10800 J.

26. The kinetic energy of a 0.5 kg bullet moving with velocity of 500 m/s is
- A. 125 J.
 - B. 250 J.
 - C. 62500 J.
 - D. 125000 J.
27. If a person releases 500 J of energy by walking along a track in 125 seconds, then the required average muscular power is
- A. 0.25 W.
 - B. 4.0 W.
 - C. 375 W.
 - D. 625 W.
28. Compared to the sea level, the atmospheric pressure on mountains is
- A. zero.
 - B. equal.
 - C. lower.
 - D. higher.
29. To push the liquid up in a straw, the air pressure inside the straw will
- A. increase.
 - B. decrease.
 - C. become zero.
 - D. remain constant.
30. According to the kinetic molecular model of matter, the molecules of a substance
- A. are in the state of rest.
 - B. are in the state of motion.
 - C. have constant momentum.
 - D. have same velocity during collision.
31. A parcel box of weight 500 N is placed on a table. If the area of the bottom of the box is measured as 0.50 m^2 , then the pressure exerted by the box on the table will be
- A. 250 Pa.
 - B. 499.5 Pa.
 - C. 500.5 Pa.
 - D. 1000 Pa.

32. In a magic show, a performer lies down on a bed of nails without any injury. However, when the same performer steps on a single nail, it goes right through his foot.

With reference to the given situation, which of the following statements is TRUE?

- A. The area is same in both the cases, but more force is applied on the bed of nails.
 - B. The force remains the same, but more pressure is applied on the bed of nails.
 - C. More force is exerted on a single nail than on the entire bed of nails.
 - D. Force increases, but less pressure is applied on the bed of nails.
33. In a clinical thermometer, mercury does NOT fall back to the bulb because
- A. it is less in quantity.
 - B. it is in a capillary tube.
 - C. of the shape of the thermometer's bulb.
 - D. of the constriction in the capillary tube.
34. The escape of high kinetic energy molecules in the form of vapours from the surface of a liquid without heating is known as
- A. fusion.
 - B. boiling.
 - C. evaporation.
 - D. condensation.
35. If an inflated tyre of a car bursts, then the temperature of air that will escape from the tyre
- A. increases.
 - B. decreases.
 - C. becomes 100°C .
 - D. remains constant.
36. If the temperature of a substance is 20°C , then its temperature in Kelvin scale will be
- A. -253 K .
 - B. -6.66 K .
 - C. 68 K .
 - D. 293 K .
37. An example of a good conductor of heat is a
- A. glass door.
 - B. frying pan.
 - C. wooden door.
 - D. leather jacket.

38. Radiations' incident on a surface increases its temperature.

Which of the following characteristics should be present in a surface that can protect itself MOST effectively against radiation?

- A. Poor absorber and poor emitter
- B. Poor absorber and good emitter
- C. Good absorber and poor emitter
- D. Good absorber and good emitter

39. The process of transfer of heat in liquids and gases is/ are called

- I. conduction
- II. convection
- III. radiation

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

40. When a wooden spoon is dipped in a bowl of soup, it does not become hot.

In the given situation, the wooden spoon acts as a/ an

- A. electrical conductor.
- B. electrical insulator.
- C. heat conductor.
- D. heat insulator.

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