AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS IX EXAMINATION

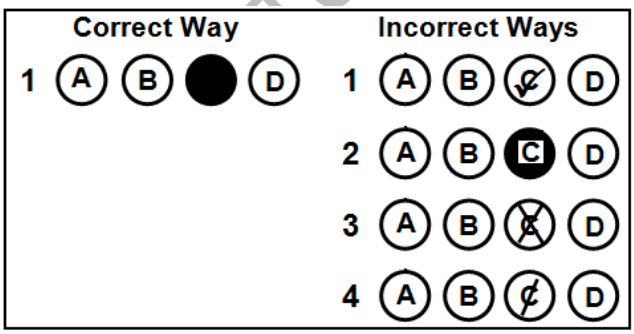
APRIL/ MAY 2019

Physics Paper I

Time: 45 minutes Marks: 30

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 30 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. The scientific notation of 0.00002019 is

   A. 2.019×10^{-5}
   B. 2.019×10^{-4}
   C. 2.019×10^{4}
   D. 2.019×10^{5}

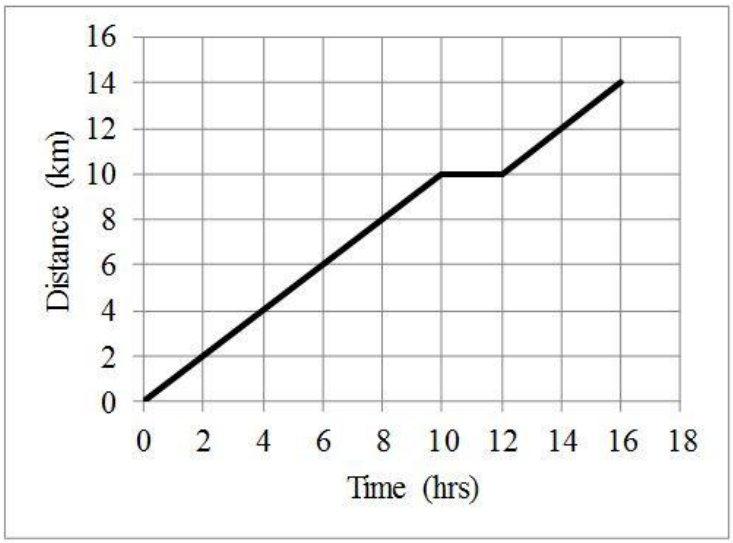
2. Which of the following instruments is used to measure the internal diametre of a pipe?

   A. Metre rule
   B. Screw gauge
   C. Vernier callipers
   D. Measuring cylinder

3. An athlete runs around a circular track of radius 50 m and finishes at the same point where he began his journey. His total displacement in metre(s) is evaluated to be

   A. 0
   B. $\frac{\pi}{2}$
   C. 2π
   D. 100π

4. A distance-time graph of a moving object is given below.



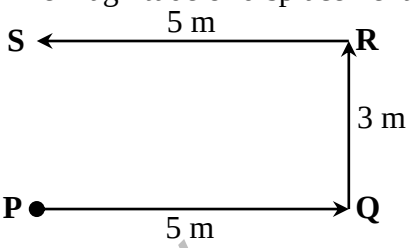
   With reference to the given graph, the distance covered during 10 to 12 hours is

   A. 0 km.
   B. 2 km.
   C. 5 km.
   D. 10 km.

5. A car starts from rest and has uniform acceleration of 10 m/s^2. After some time it possess the velocity of 30 m/s. The distance covered by the car during this time is

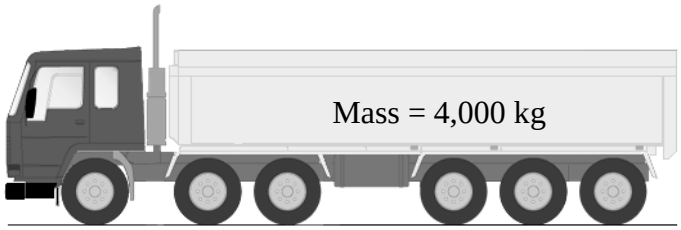
   A. 920 m.
   B. 880 m.
   C. 50 m.
   D. 45 m.

6. A boy starts his travelling from a point **P** and ends at point **S**. The magnitude of displacement from point **P** to **S** is



   A. 3 m.
   B. 5 m.
   C. 8 m.
   D. 13 m.

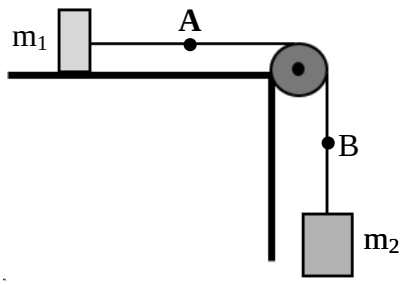
7. The momentum of a moving truck as shown in the given diagram is



   A. 3,978 kg.m/s.
   B. 4,022 kg.m/s.
   C. 88,000 kg.m/s.
   D. 968,000 kg.m/s.

8. In the given figure, two blocks of masses m_1 and m_2 are attached with an inextensible string such that the pulley and the horizontal surface are frictionless.

   If the blocks are at rest, then the tension in the string at point **A** will be



   A. zero.
   B. equal to tension at point B.
   C. less than tension at point B.
   D. greater than tension at point B.

9. An object is moving on a horizontal surface. The force exerted by the horizontal surface that opposes the motion of the object is

   A. weight.
   B. gravity.
   C. tension.
   D. friction.

10. In an elastic collision, which of the following also remains conserved along with momentum?

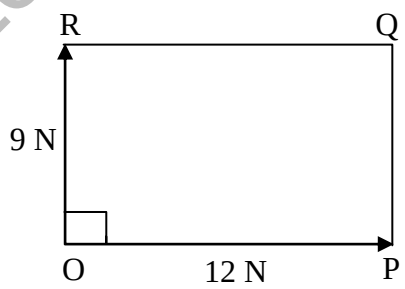
   A. Potential energy
   B. Kinetic energy
   C. Sound energy
   D. Heat energy

11. If the maximum moment of force on a door is 10 Nm by an applied force of 2.25 N, then the distance of handle from hinge (pivot) is

   A. 0.225 m.
   B. 4.444 m.
   C. 12.250 m.
   D. 22.500 m.

12. 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 $\overrightarrow{PR}$



13. Let suppose, a hole is drilled through the Earth along the diametre and a stone is dropped into it. When the stone reaches the centre of the Earth keeping same size and shape, it has constant

   A. mass.
   B. weight.
   C. momentum.
   D. acceleration.

14. A satellite is revolving around the Earth in a circular orbit with a 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. v
   C. 2v
   D. infinite.

15. If the radius of the Earth shrinks by 1%, while its mass remains the same, then the acceleration due to gravity on the Earth's surface would

    A. increase.
    B. decrease.
    C. remain the same.
    D. vary in an unpredictable manner.

16. 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 as earlier.

17. An astronaut returns from the Moon to the Earth. Which of the following is the CORRECT description about his/ her mass and weight?

	Mass	**Weight**
A	Less on Earth than Moon	Same on Earth and Moon
B	More on Earth than Moon	Same on Earth and Moon
C	Same on Earth and Moon	Less on Earth than Moon
D	Same on Earth and Moon	More on Earth than Moon

18. 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.

19. 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.

20. 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.

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

    A. is lower.
    B. is higher.
    C. is the same.
    D. varies unpredictably.

22. While drinking juice with the help of a straw from a juice cane, the air pressure inside the straw will

    A. increase.
    B. decrease.
    C. remain constant.
    D. vary unpredictably.

23. A change caused by stress in original shape, volume or length is called as

    A. strain.
    B. density.
    C. pressure.
    D. elasticity.

24. If the temperature of a gas is increased continuously, then which of the following energies increases in the gas molecules?

    A. Heat energy
    B. Light energy
    C. Kinetic energy
    D. Potential energy

25. If the temperature of a hot pot is 125^{o}C, then its temperature in kelvin will be

    A. 148 K.
    B. 225 K.
    C. 257 K.
    D. 398 K.

26. When Sun rays fall on a stone and water in a beaker, the stone becomes hot quickly as compared to water. This is because the stone has

    A. more heat capacity than water.
    B. more thermal expansion than water.
    C. less latent heat of fusion than water.
    D. less specific heat capacity than water.

27. In evaporation, water starts converting into vapours

    A. at exactly 4°C.
    B. at any temperature.
    C. more than 100°C only.
    D. between 0°C and 4°C only.

28. If the thickness of a wall is doubled, then the thermal conductivity will

A. become one half.
B. become double.
C. become one fourth.
D. remain same.

29. Heat reaches the surface of the Earth from the Sun MAINLY because of

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

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

30. All of the following factors affect the rate of transfer of energy in radiation EXCEPT

A. surface area.
B. surface temperature.
C. shape of the surface.
D. colour and texture of the surface.

END OF PAPER

Please use this page for rough work