AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS IX

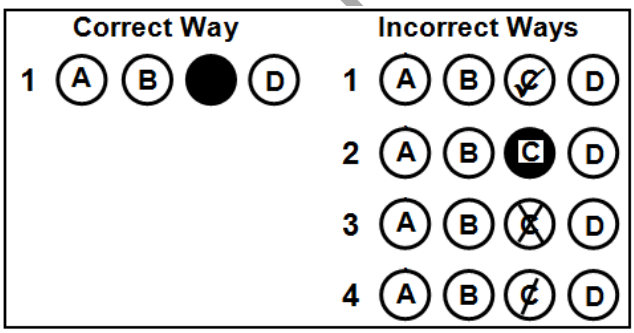
MODEL EXAMINATION PAPER 2018

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. Which of the following is a derived physical quantity?

   A. Time
   B. Mass
   C. Length
   D. Volume

2. In 0.020180, the total numbers of significant figures are

   A. four.
   B. five.
   C. six.
   D. seven.

3. The type of motion that takes place in a simple pendulum is

   A. linear.
   B. circular.
   C. random.
   D. vibratory.

4. Which of the following is a vector quantity?

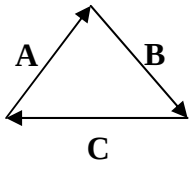
   A. Time
   B. Mass
   C. Distance
   D. Velocity

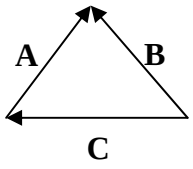
5. A ball is dropped from the top of a building. If it takes four seconds to reach the ground, then the height of the building is

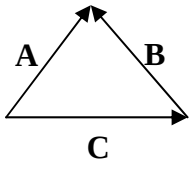
   (**Note**: Use the value of acceleration due to gravity 'g' as 10 m/s^2.)

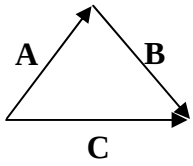
   A. 20 m
   B. 40 m
   C. 80 m
   D. 160 m

6. Using head to tail rule of vector addition, which vector diagram represents the resultant of vectors **A** and **B** as vector **C**?

A. 

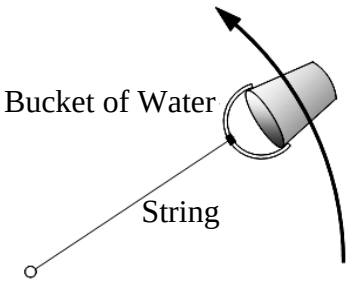
B. 

C. 

D. 

7. When a bucket full of water is rapidly whirled in a vertical circular path as shown in the given diagram, then water in the bucket

A. remains intact.
B. falls out at once.
C. leaks out gradually.
D. reduces to half in quantity.



8. In a boxing match, a boxer **A** quickly moves his head backward when he observes he is going to receive a punch on his head. This motion gives advantage to boxer **A** because it

A. decreases the momentum and increases the force.
B. increases the momentum and decreases the force.
C. increases the span of time for contact which decreases the force.
D. decreases the span of time for contact which decreases the force.

9. If a body of mass 10 kg is moving with a velocity of 20 m/s, then its momentum will be

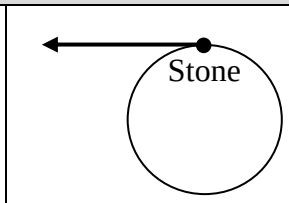
A. 2 Ns
B. 10 Ns
C. 30 Ns
D. 200 Ns

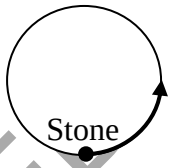
10. The crumple zones are used as a safety feature in cars because they

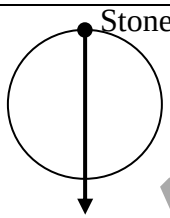
    A. decrease the time over which a car is brought to rest which decreases the force exerted on the passengers.
    B. increase the time over which a car is brought to rest which decreases the force exerted on the passengers.
    C. allow the forces on the passengers to be as large as possible.
    D. allow the forces on the passengers to be constant.

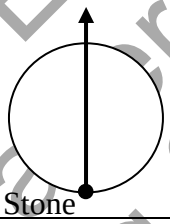
11. If the contact of a rotating stone attached to a string breaks, then in which direction will the detached stone move?

Direction of the Detached Stone

A 

B 

C 

D 

12. If the position of a body is disturbed and it does not return to its original position, then the body will be in

    I. stable equilibrium
    II. neutral equilibrium
    III. unstable equilibrium

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

13. While digging, a miner moves 25 km deep down in a coal mine.

    Compared to his actual weight on the surface of the Earth, his weight inside the coal mine will

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

14. The value of acceleration due to gravity ‘g’ varies with the

A. distance of the Earth from the Sun.
B. change in temperature of the Earth.
C. distance from the centre of the Earth.
D. change in atmospheric pressure on Earth’s surface.

15. All the planets revolve around the Sun due to the presence of

A. cohesive force between the planets.
B. centripetal force between the planets.
C. mutual attraction between the planets.
D. gravitational attraction between planets and the Sun.

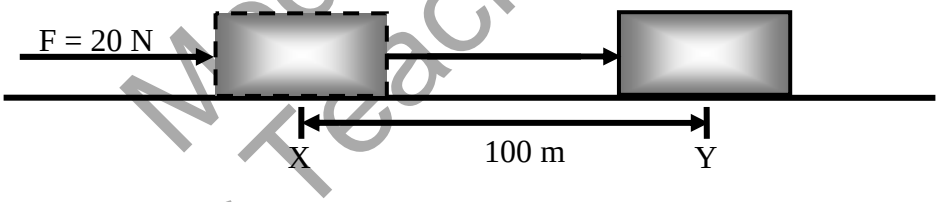
16. The moon and the Earth maintain their specific distance because of all of the following EXCEPT

A. inertia.
B. gravity.
C. repulsive force.
D. centripetal force.

17. Which of the following best describes a universe?

A. A vast collection of stars
B. A cluster of all the galaxies
C. Another name for the Milky Way galaxy
D. The total sum of all the matter and energy

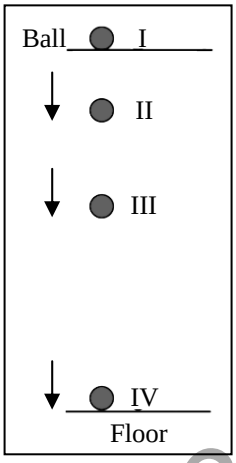
18. A force (F) is applied to move the block on a smooth horizontal surface from point (X) to point (Y) as shown in the given diagram.



The amount of work done by the applied force (F) is

A. 2 J
B. 20 J
C. 200 J
D. 2000 J

19. A metallic ball is dropped from a certain height as shown in the given figure. Neglecting the air resistance, the total energy of the ball will be



A. maximum at II and III only.
B. maximum at I and II only.
C. same at I and III only.
D. same at all positions.

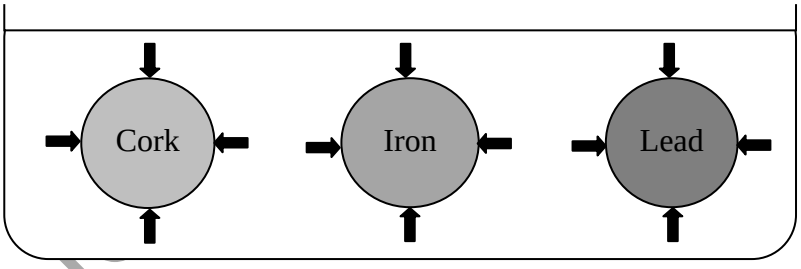
20. The sequence in which conversion of energy takes place at fossil fuel power stations is

A. heat → light → kinetic
B. heat → light → electrical
C. heat → kinetic → electrical
D. heat → electrical → chemical

21. The force acting on unit area of an object causing changes in its shape and size is called

A. strain.
B. stress.
C. viscosity.
D. elasticity.

22. Three different balls of the same diameter are immersed in water completely. Which of the following is TRUE about the upthrust exerted by water on the balls?



A. All balls have the same upthrust.
B. Iron ball has the maximum upthrust.
C. Cork ball has the maximum upthrust.
D. Lead ball has the maximum upthrust.

23. According to the kinetic theory of matter, particles move randomly with high velocities in

A. solids.
B. gases.
C. liquids.
D. plasma.

24. With reference to the mass energy equation, matter

    A. cannot be converted into energy.
    B. can be converted into huge amount of energy.
    C. can be converted into small amount of energy.
    D. can be converted into the same amount of energy.

25. Mercury is commonly used in a glass thermometer because it

    A. is easily available.
    B. is silver in appearance.
    C. has a high freezing point.
    D. has high coefficient of expansion.

26. If the temperature of a substance is 20^{o}C, then its temperature in Kelvin scale will be

    A. –253 K
    B. –6.66 K
    C. 68 K
    D. 293 K

27. When a small piece of red-hot iron is dropped into a vessel of boiling water, the temperature of water will

    A. increase.
    B. decrease.
    C. remain constant.
    D. become same as iron.

28. 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 gliders.
    C. gas heaters to heat up rooms.
    D. heating pads to relax muscles.

29. The ventilator in a room works on the principle of

    A. radiation.
    B. convection.
    C. conduction.
    D. evaporation.

30. If a hot iron block of mass 1000 kg is cooled in a chamber from 500 K to 300 K, the amount of heat given out by this iron block will be

    (**Note**: Specific heat of iron = 450 J/kg.K)

    A. 90 J
    B. 2250 J
    C. 9.0×10^{7} J
    D. 1.650×10^{3} J

END OF PAPER

Please use this page for rough work