AGA KHAN UNIVERSITY EXAMINATION BOARD

HIGHER SECONDARY SCHOOL CERTIFICATE

CLASS XI

ALTERNATE TO PRACTICAL (ATP)

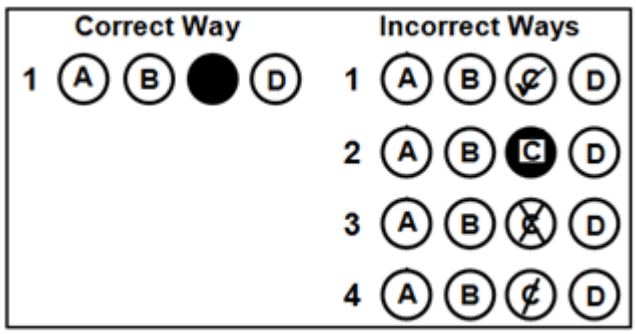
MODEL EXAMINATION PAPER 2021

Physics Paper III

Time: 25 minutes Marks: 15

INSTRUCTIONS

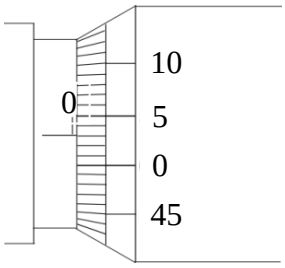
1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 15 only.
4. In each question, there are four choices A, B, C, D. Choose ONE. On 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 scientific calculator if you wish.

1. The given diagram shows two different scales on a screw gauge which is not currently in use.



The CORRECT value of zero error present in the given screw gauge is

A. – 0.03 mm.
B. – 0.3 mm.
C. 0.03 mm.
D. 0.3 mm.

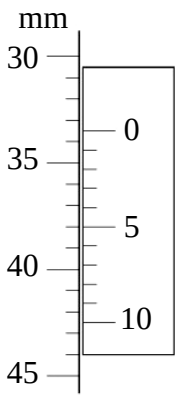
2. Given is an observation table.

No. of Obs.	Reading on		No. of Complete Rotations	No. of Divisions	Thickness
	Cover Slip	Glass Plate			

This observation table will be used if the reading is taken from

A. metre rule.
B. screw gauge.
C. spherometre.
D. Vernier callipers.

3. The given diagram shows parts of a pair of Vernier callipers.



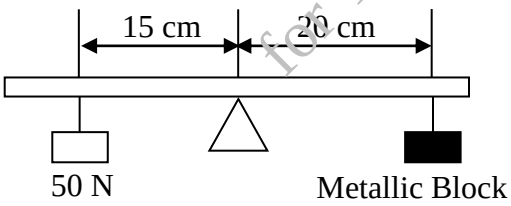
In the given situation, the CORRECT main scale reading is

A. 30.5 mm.
B. 33 mm.
C. 33.5 mm.
D. 38 mm.

4. If the tail of a vector A coincides with the head of a vector B, the resultant vector of these two vectors will be the

A. division of vectors.
B. addition of vectors.
C. subtraction of vectors.
D. multiplication of vectors.

5. The given diagram shows a uniform metre scale which is balanced at its mid-point.



The mass of the metallic block is

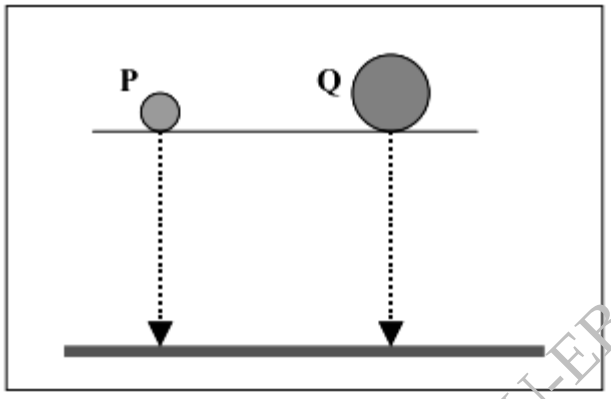
A. 3.83 kg.
B. 6.80 kg.
C. 37.5 kg.
D. 66.67 kg.

6. The total distance covered by a free falling object in 2 s will be

(**Note**: The acceleration due to gravity 'g' is 9.8 m/s^2.)

A. 4.9 m
B. 19.6 m
C. 29.4 m
D. 39.2 m

7. Two different metallic spheres **P** and **Q** are dropped at the same time from the same height as shown in the given diagram.



In the given situation, which of the following would be the CORRECT observation and its cause?

(**Note**: Air resistance is considered negligible.)

	Observation	Cause
A	Both spheres reach the floor at the same time.	Air resistance is negligible on both the spheres.
B	Sphere **P** reaches the floor first.	The lighter sphere will fall faster than the heavier one.
C	Sphere **Q** reaches the floor first.	Gravitational acceleration is greater on the heavier sphere.
D	Both spheres reach the floor at the same time.	Gravitational acceleration is the same on both the spheres.

8. A bob, made of ice, is attached to a simple pendulum. During oscillations, the ice bob is constantly melting.

The time taken by the 1^{st} oscillation, as compared to the 50^{th} oscillation will be

A. less.
B. more.
C. same.
D. unpredictable.

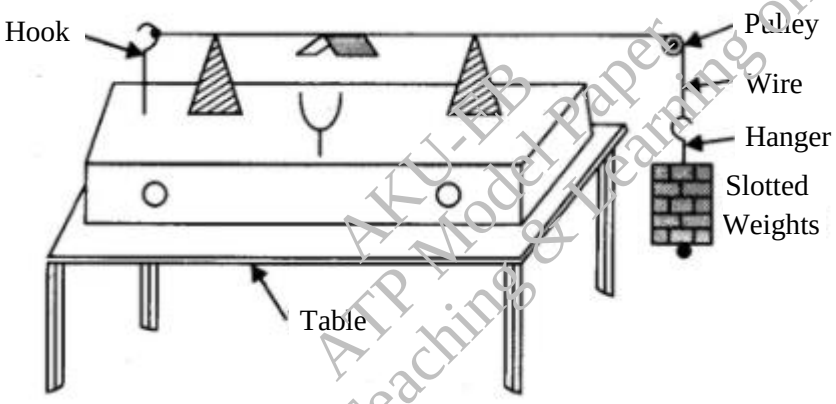
9. If the length of a simple pendulum becomes four times of its original length, then its time period will increase

   A. two times.
   B. four times.
   C. six times.
   D. eight times.

10. If the frequency and velocity of a sound wave is 30 Hz and 330 m/sec respectively, then the wave length of the sound wave will be

   A. 11 m
   B. 300 m
   C. 360 m
   D. 9900 m

11. The given picture shows a lab setting of an electric sonometer at a school.



Which of the following factors will NOT cause an error during the experiment?

   A. Friction in the pulley
   B. Acceleration of the slotted weights
   C. Unstable frequency of tuning the fork
   D. Uniform cross-sectional area of the wire

12. In the Melde's apparatus experiment, the frequency of the vibrating string depends on all of the following factors EXCEPT for the

   A. tension in the string.
   B. length between the nodes.
   C. mass placed in the scale pan.
   D. cross-sectional area of the cotton thread.

13. The temperature of an iron ball is 40°C. It is dropped in a cylindrical calorimeter made of copper containing water. The temperature of the water is also 40°C.

After sometime, the temperature of the iron ball and the water will be

	Temperature of the Iron Ball	**Temperature of the Water**
A	0^oC	80^oC
B	80^oC	0^oC
C	40^oC	40^oC
D	40^oC	80^oC

14. Given is the formula to calculate a physical quantity.

$$J = \frac{VIt}{m(T_2 - T_1)}$$

Assuming that the magnitude of the denominator and 'J' is 36 and 20 respectively, then the magnitude of the numerator and the physical quantity represented by 'J' is

	Magnitude of the Numerator	**Physical Quantity**
A	720	Specific heat
B	1.8	Specific heat
C	720	Work done
D	1.8	Work done

15. If the mechanical equivalent of heat is determined as $6x$ and its actual value is $3x$, then the percentage error will be

A. 25%
B. 50%
C. 75%
D. 100%

END OF PAPER

Please use this page for rough work

Please use this page for rough work