

**AGA KHAN UNIVERSITY EXAMINATION BOARD**

**SECONDARY SCHOOL CERTIFICATE**

**CLASS X**

**ALTERNATE TO PRACTICAL (ATP)**

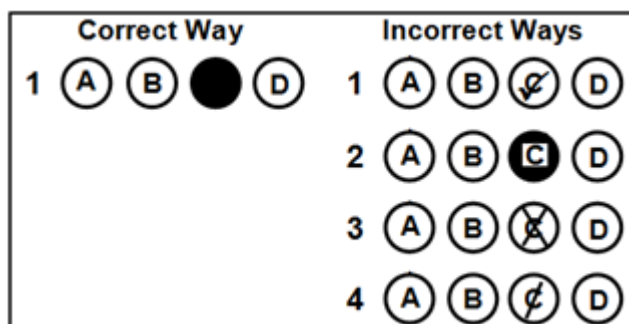
**MODEL EXAMINATION PAPER 2021**

**Physics Paper III**

**Time: 20 minutes    Marks: 10**

**INSTRUCTIONS**

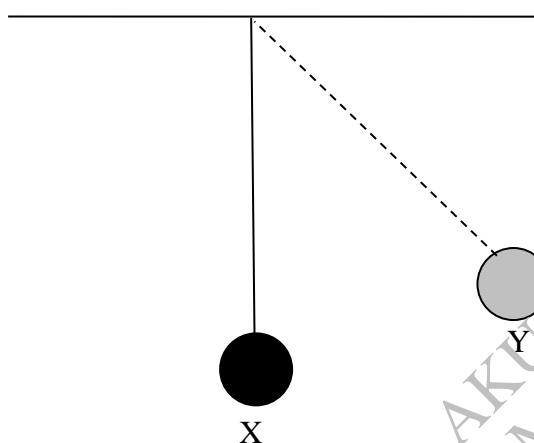
1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 10 only.
4. In each question, there are four choices A, B, C, D. Choose ONE. On the answer grid, black out the circle for your choice with a pencil as shown below.



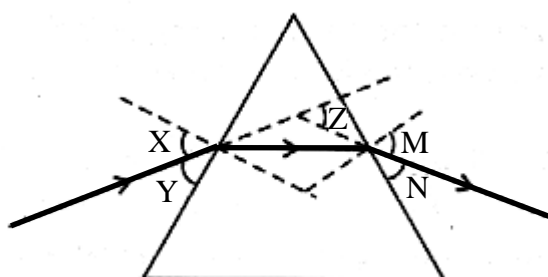
**Candidate's Signature**

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. A simple pendulum consists of a hollow bob and an inextensible string. If the bob is filled with water and a small hole is made at the bottom through which the water leaks at a constant rate, then the time period of the pendulum will
  - A. increase.
  - B. decrease.
  - C. remain the same.
  - D. vary unpredictably.
2. The time taken by the given simple pendulum to swing from its position 'Y' to 'X' is 't'. If the pendulum is placed in a laboratory and its length does not change, then the time period of the pendulum will be



- A. t
  - B. 2t
  - C. 4t
  - D. 5t
3. The path of a ray of light passing through a glass prism is shown in the given diagram.



Which of the following options show the CORRECT labelling of the angles?

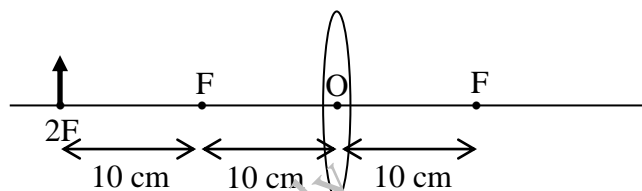
	Angle of Incidence	Angle of Emergence	Angle of Deviation
A	Y	N	Z
B	Y	Z	M
C	X	N	Z
D	X	M	Z

4. If the real depth of a swimming pool is 4 m, then the apparent depth of the pool will be

(**Note:** The refractive index of water is 1.33)

- A. 0.32 m  
 B. 2.67 m  
 C. 3.00 m  
 D. 5.32 m
5. In the given ray diagram, an object is placed at ( $2F$ ) in front of a converging lens. The distance between the optical centre ( $O$ ) and the image of the object is

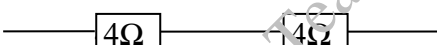
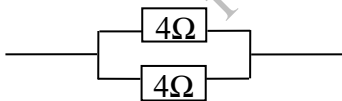
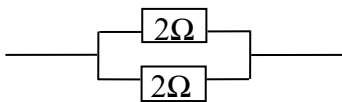
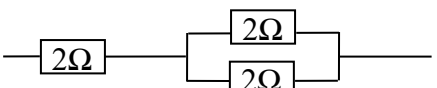
- A. 8 cm  
 B. 12 cm  
 C. 20 cm  
 D. 36 cm



6. If a  $10\ \Omega$  resistor is powered by a 5 V battery, then the electric current flowing through the resistor will be

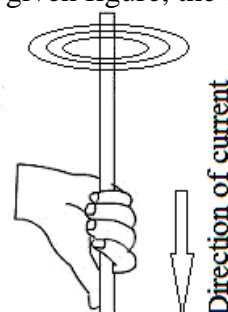
- A. 0.5 A  
 B. 5 A  
 C. 15 A  
 D. 50 A

7. Which of the following options gives the equivalent resistance of  $2\ \Omega$ ?

- A. 
- B. 
- C. 
- D. 

8. When a steady current passes through a conductor, as shown in the given figure, the direction of the magnetic field lines will be

- A. upward.  
 B. clockwise.  
 C. downward.  
 D. anticlockwise.



PLEASE TURN OVER THE PAGE

9. A burglar alarm system is set in a room. The room has two entry points, i.e. a door and a window. The alarm should ring (1 or on) if the door and window both are opened. The opening of the door and window are the input and the ringing of the alarm is the output in this system.

The gate that should be used in the given system is the

- A. OR gate.
  - B. AND gate.
  - C. NOR gate.
  - D. NAND gate.
10. The name of the logic gate represented by the given truth table is the

Switch 1	Switch 2	Lamp
Open	Open	OFF
Open	Closed	ON
Closed	Open	ON
Closed	Closed	ON

- A. OR gate.
- B. NOT gate.
- C. AND gate.
- D. NAND gate.

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