AGA KHAN UNIVERSITY EXAMINATION BOARD

HIGHER SECONDARY SCHOOL CERTIFICATE

CLASS XII

ALTERNATE TO PRACTICAL (ATP)

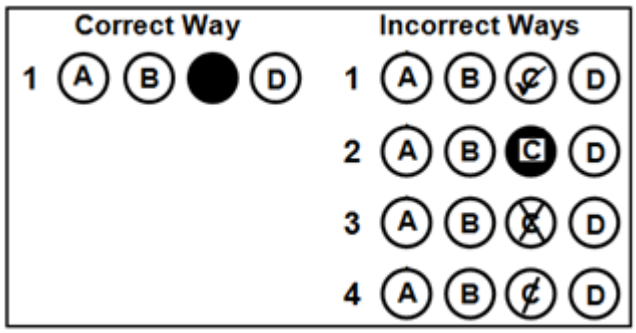
MODEL EXAMINATION PAPER 2021

Physics Paper III

Time: 25 minutes Marks: 15

INSTRUCTIONS

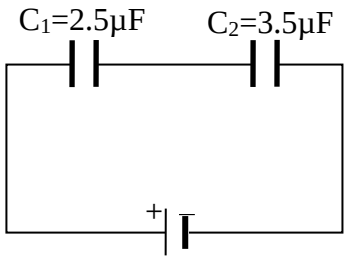
1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 15 only.
4. In each question, there are four choices A, B, C, D. Choose ONE. On 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. In the given circuit diagram, two capacitors are connected in series with a battery.



V=12 Volt

The equivalent capacitance of the circuit is

A. 0.69 µF
B. 1.46 µF
C. 6.00 µF
D. 8.75 µF

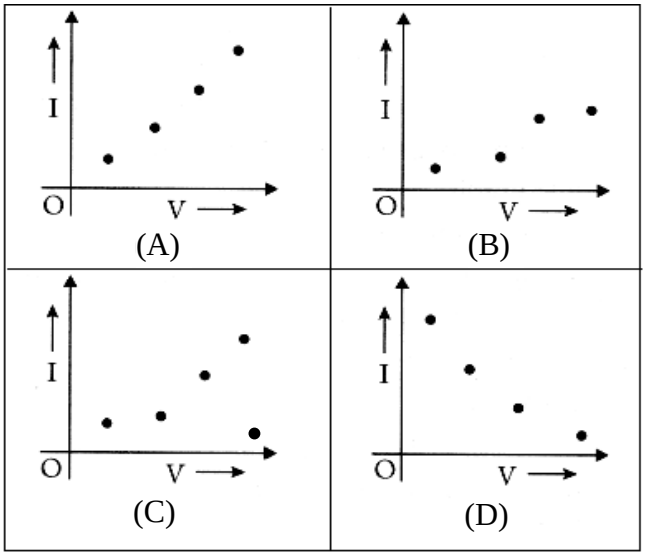
2. Which of the following statements about voltage is CORRECT when a capacitor is fully charged?

A. Voltage becomes zero
B. Voltage becomes infinite
C. Source voltage becomes half of the capacitor voltage
D. Source voltage becomes equal to the capacitor voltage

3. The capacitance of a parallel plate capacitor does NOT depend on the

A. area of the plates.
B. distance between the plates.
C. resistance between the plates.
D. medium used between the plates.

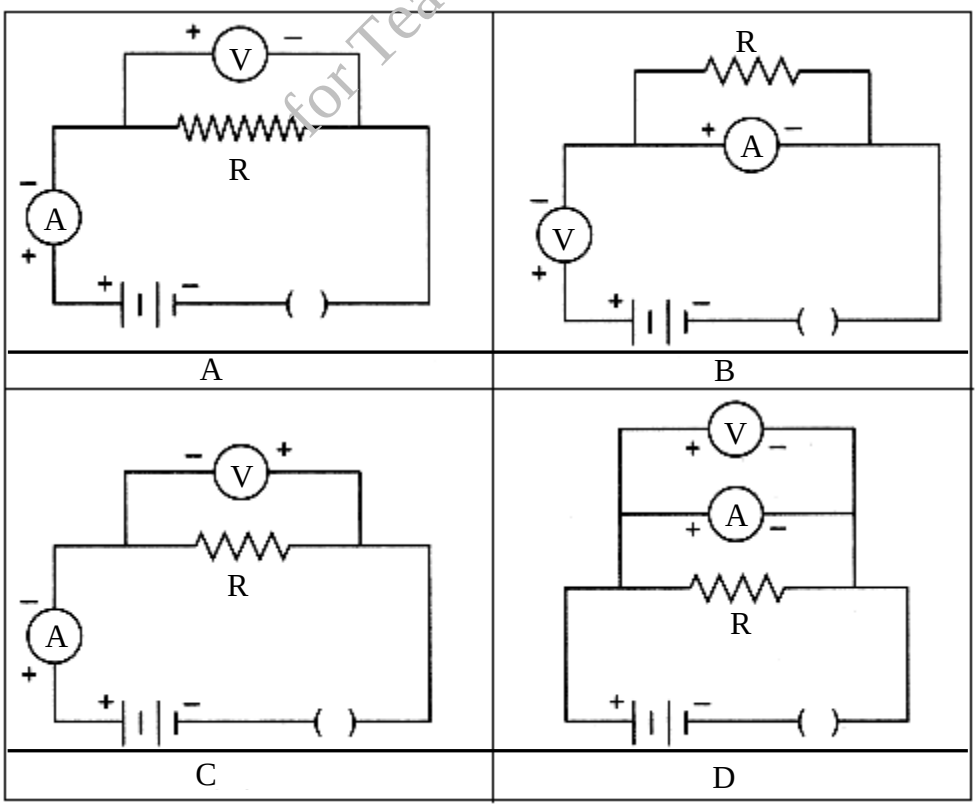
4. Which of the following graphs correctly shows the relationship between an electric current (I) and the potential difference (V) across a resistor?



5. An electric current is passing through a conductor. If the potential difference across it is doubled and the resistance is halved, then the amount of the current will become

A. half.
B. double.
C. four times.
D. eight times.

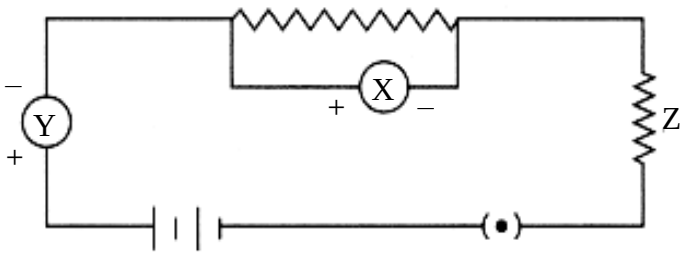
6. The CORRECT laboratory set-up for studying the dependence of the electric current (A) on the potential difference (V) across a resistor (R) is



7. According to Ohm's law, if voltage increases and the resistance is kept constant in an electric circuit, then the current will

   A. increase.
   B. decrease.
   C. become zero.
   D. remain constant.

8. A student has set-up the following apparatus to verify Ohm's law.



   In the given circuit diagram, X, Y and Z represent

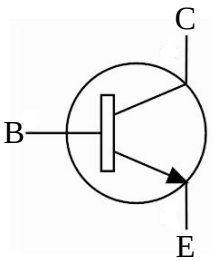
   A. ammetre, voltmetre and rheostat.
   B. voltmetre, ammetre and rheostat.
   C. voltmetre, ammetre and fixed resistor.
   D. ammetre, voltmetre and fixed resistor.

9. In an electric circuit, a transistor can be used as a switch when the

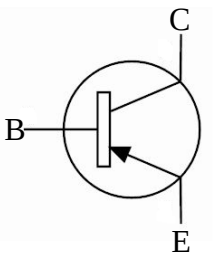
   A. base and emitter behave as two terminals.
   B. collector and base behave as central region.
   C. base and collector behave as central region.
   D. collector and emitter behave as two terminals.

10. The diagram depicting n-p-n transistor is

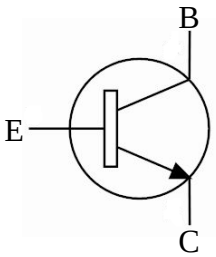
    (**Note**: Where B, C and E represent Base, Collector and Emitter respectively)



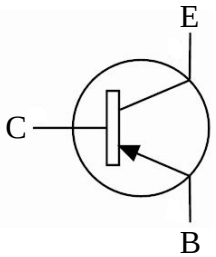
A



B



C

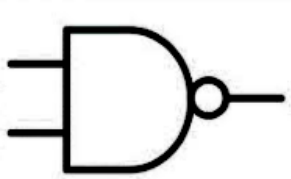


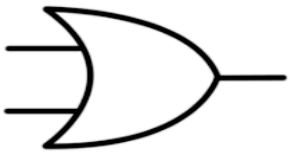
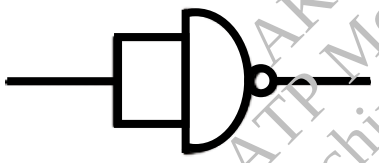
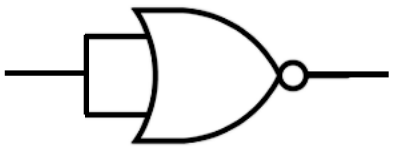
D

11. In a p-n junction diode, if the p-side is at positive potential and the n-side is at a negative potential, then this junction is said to be

    A. reverse biased.
    B. forward biased.
    C. potential barrier.
    D. absolute potential.

12. If the two terminals of the given gate are connected together, then the symbol representing the resulting logic gate will be



	
A	B
	
C	D

13. If the output of an AND gate is 0, then all of the following will be valid EXCEPT when

    A. both inputs are 1.
    B. both inputs are 0.
    C. one of the inputs is 1.
    D. one of the inputs is 0.

14. Which of the following statements is CORRECT about the photocurrent?

    A. It is inversely proportional to the applied voltage.
    B. It increases with the increase in the intensity of light.
    C. It increases with the decrease in the frequency of light.
    D. It decreases by reducing the distance between source and photocell.

15. Maria conducts an experiment using a photocell. In the initial setting, the light source is fixed at 0 m on a metre rule. For determining the value of stopping potential, Maria places a photocell at 30 cm and 60 cm for taking readings 1 and 2 respectively.

If these readings are taken without any error, then which of the following options depicts Maria's readings?

	Reading 1	**Reading 2**
A	V	2V
B	2V	V
C	V	V
D	2V	3V

END OF PAPER

Please use this page for rough work

Please use this page for rough work