AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS X EXAMINATION

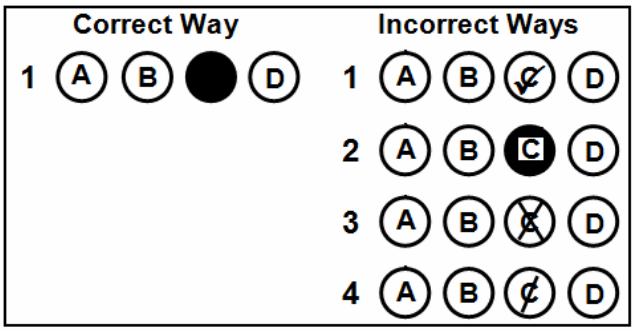
MAY 2012

Physics Paper I

Time allowed: 35 minutes Marks 25

INSTRUCTIONS

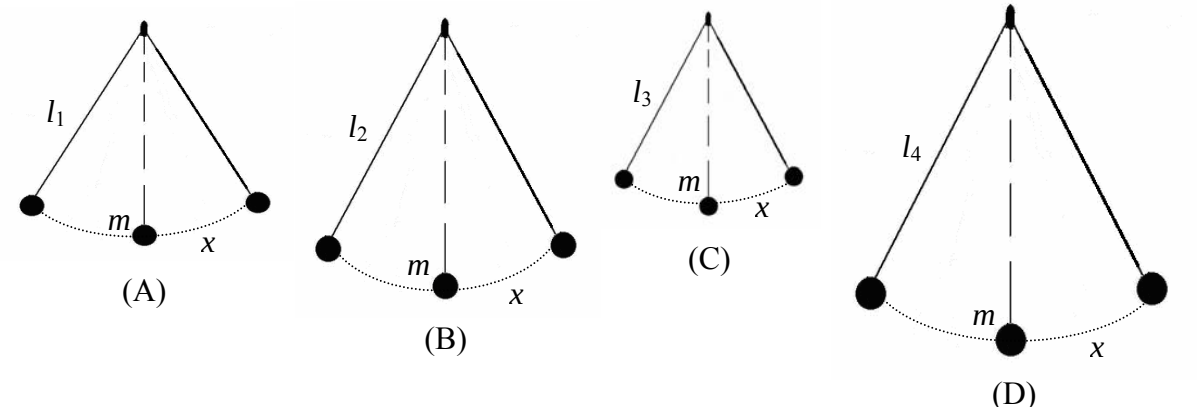
1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 25 only.
4. In each question there are four choices A, B, C, D. Choose ONE. On the answer grid black out the circle for your choice with a pencil as shown below.



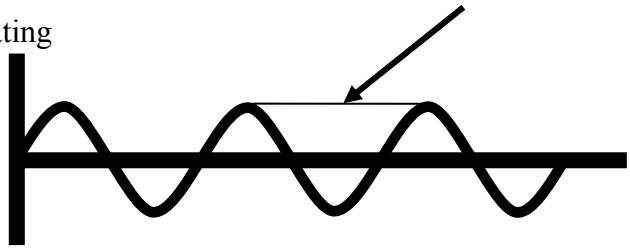
Candidate's Signature

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 pendulums has the least time period?



2. In the given figure of a wave the arrow is indicating



A. trough.
B. amplitude.
C. wave length.
D. displacement.

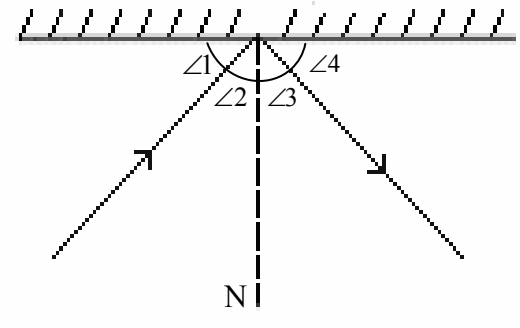
3. Four vibrating objects are producing sounds. Which of the following objects will produce the loudest sound?

	Object	Area of vibrating body	Amplitude of vibration
A	X_1	5 m^2	4 cm
B	X_2	6 m^2	4 cm
C	X_3	10 m^2	1 cm
D	X_4	10 m^2	5 cm

4. Sonar system is used for searching for hidden treasures under sea water. Which of the following is used in the sonar system?

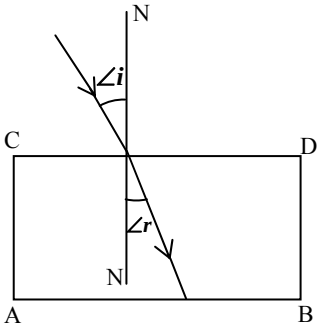
A. E.E.G
B. X-rays
C. C.T scan
D. Ultrasound

5. If a light ray strikes the smooth surface of the given plane mirror, then the angle of incidence will be



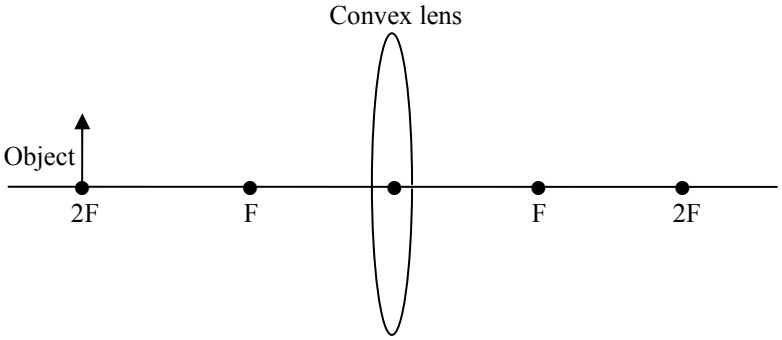
A. ∠1
B. ∠2
C. ∠3
D. ∠4

6. If the angle of incidence $(\angle i)$ in the given figure is 40°, then the angle of refraction $(\angle r)$ will be



A. less than 40°
B. 40°
C. more than 40°
D. 50°

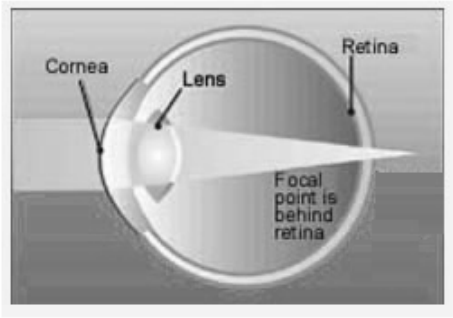
7. Where will an image form in the given diagram if the magnification is 1?



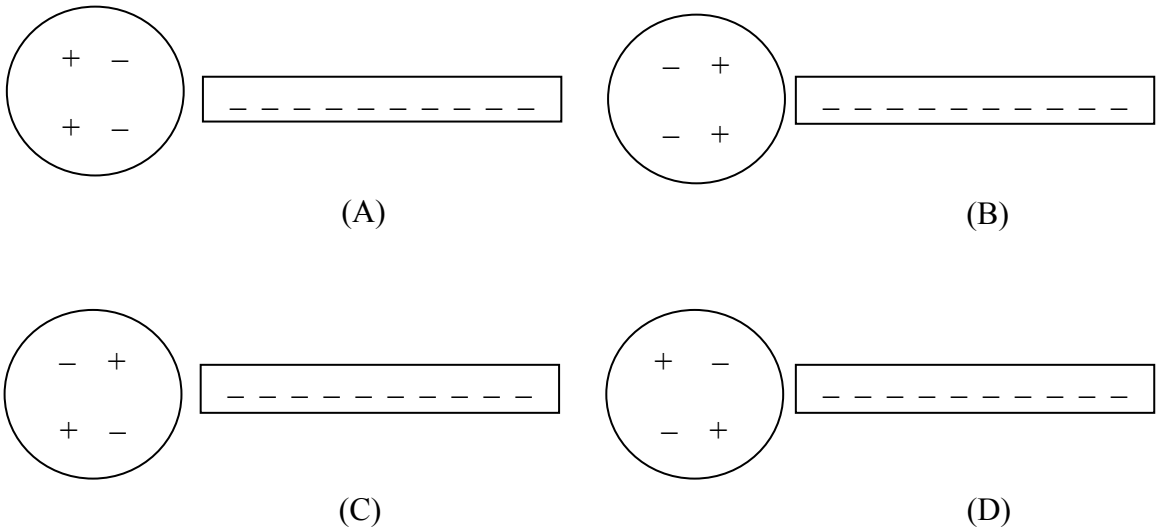
A. At F
B. Between F and 2F
C. At 2F
D. Beyond 2F

8. The given diagram shows the position of an image of a very distant object produced by an eye. Which of the following correctly indicates the defect of vision and its cure?

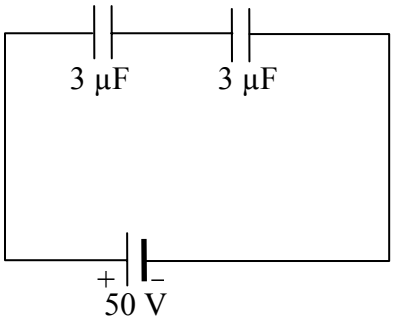
	Defect of vision	Cure
A	Long sightedness	Use of a convex lens
B	Long sightedness	Use of a concave lens
C	Short sightedness	Use of a convex mirror
D	Short sightedness	Use of a concave mirror



9. A negatively charged metallic rod is brought close to a neutral object. Which figure is correct about electrostatic induction?



10. How much charge will be deposited when two parallel plate capacitors, each of 3 μF are connected with a battery of 50 V in a series?



A. 7.5×10^{-5} coulombs
B. 1.50×10^{-4} coulombs
C. 3.00×10^{-4} coulombs
D. 4.50×10^{-4} coulombs

11. Which of the following options correctly shows Ohm's law?

	V	I	R
A	2 V	4 A	2 Ω
B	2 V	4 A	8 Ω
C	10 V	0.5 A	20 Ω
D	10 V	5 A	50 Ω

12. What will be the effect of increasing temperature of thermistor on its resistance?

I. Resistance increases if temperature increases
II. Resistance decreases if temperature increases
III. Resistance increases if temperature decreases
IV. No change in resistance

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

13. According to Fleming's left hand rule, the position of thumb shows the

A. force.
B. torque.
C. magnetic field.
D. electric current.

14. All of the following are the factors affecting the magnitude of an induced emf EXCEPT

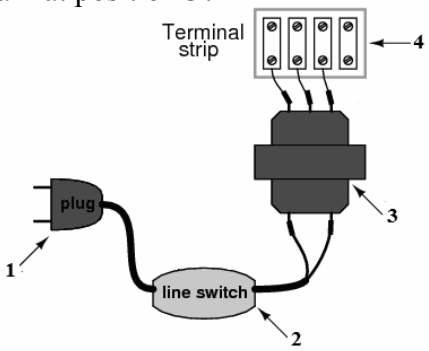
A. resistance in electric circuit.
B. current passing through the conductor.
C. speed of the conductor through the field.
D. length of the conductor moving through the field.

15. The purpose of the iron core in a transformer is to

A. make it more electromagnetic.
B. separate primary winding from secondary winding.
C. conduct current from primary to secondary winding.
D. conduct magnetic flux from one set of windings to the other.

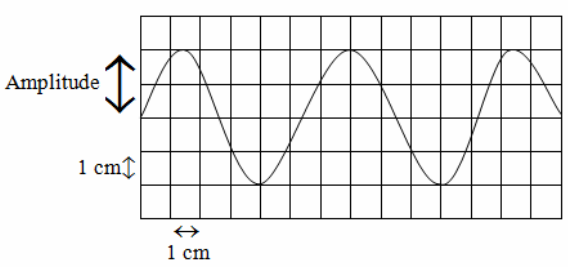
16. Which of the following devices is shown in the given diagram at position 3?

A. A resistor
B. A capacitor
C. A generator
D. A transformer



17. If the gain control is at 2 V/cm, then the peak voltage in the given diagram will be

A. 1 Volt
B. 2 Volt
C. 3 Volt
D. 4 Volt



18. The name of the gate represented in the given truth table is

Inputs		Output
0	0	1
0	1	1
1	0	1
1	1	0

A. OR
B. AND
C. NOR
D. NAND

19. All of the following are the components of information and communication technology EXCEPT

A. data.
B. software.
C. hardware.
D. power supply.

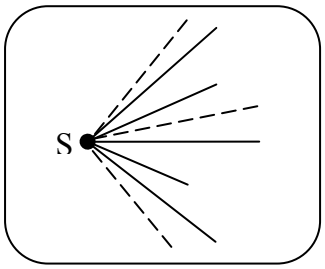
20. All of the following are information storage devices EXCEPT

A. battery.
B. hard disc.
C. flash drive.
D. audio cassette.

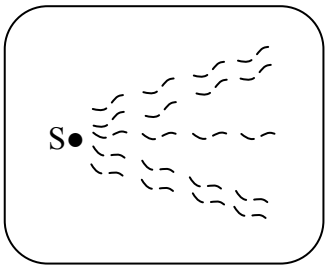
21. Which of the following elements is called a radioactive element?

A. Cesium
B. Uranium
C. Magnesium
D. Germanium

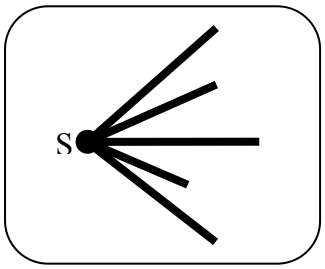
22. Which of the following diagrams represents the emission of gamma rays?



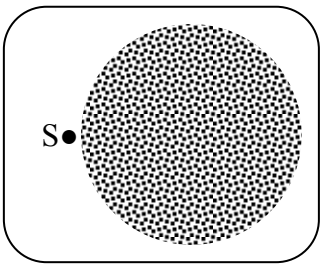
(A)



(B)



(C)



(D)

23. The following equation represents the decay of Uranium $^{238}_{92}\mathrm{U}$.

$$^{238}_{92}U \rightarrow X + \alpha$$

Which of the following nuclides is replaced by *X*?

A. $^{234}_{90}\mathrm{Th}$
B. $^{238}_{91}\mathrm{Th}$
C. $^{234}_{91}\mathrm{Pa}$
D. $^{234}_{92}\mathrm{U}$

24. What will be the values of ***x*** and ***y*** in the given equation?

$$^{234}_{90}Th \rightarrow {}^{y}_{x}Pa + {}_{-1}\beta$$

	x	***y***
A	90	233
B	90	234
C	91	233
D	91	234

25. Which of the following isotopes has equal number of protons and neutrons?

A. $^{1}_{1}\mathrm{H}$
B. $^{12}_{6}\mathrm{C}$
C. $^{226}_{88}\mathrm{Ra}$
D. $^{235}_{92}\mathrm{U}$

END OF PAPER

Please use this page for rough work