AGA KHAN UNIVERSITY EXAMINATION BOARD

SECONDARY SCHOOL CERTIFICATE

CLASS X EXAMINATION

MAY 2012

Physics Paper II

Time allowed: 2 hours 25 minutes Marks 40

INSTRUCTIONS

Please read the following instructions carefully.

1. Check your name and school information. Sign that it is correct.

I agree that this is my name and school. **Candidate's signature**

2. RUBRIC. There are NINE questions. Answer ALL NINE questions. Questions 7, 8 & 9 each offer TWO choices. Attempt any ONE choice from each.

3. When answering the questions:

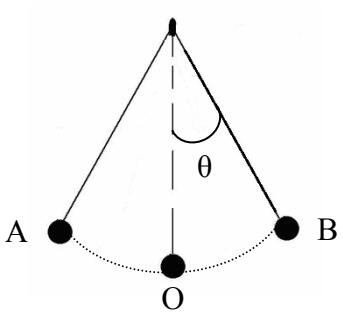
   Read each question carefully.
   Use a black pencil for diagrams. DO NOT use coloured pencils.
   DO NOT use staples, paper clips, glue, correcting fluid or ink erasers.
   Complete your answer in the allocated space only. DO NOT write outside the answer box.

4. The marks for the questions are shown in brackets ( ).

5. You may use a simple calculator if you wish.

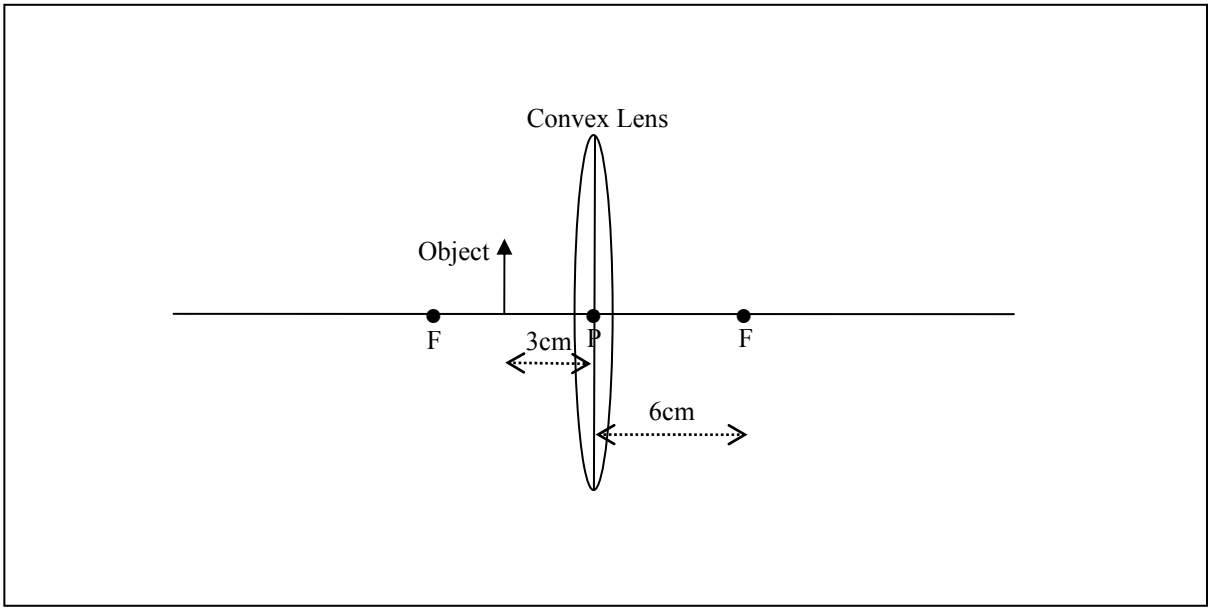
Q.1. (Total 4 Marks)

What type of motion is exhibited in the given figure? Write any THREE characteristics of this type of motion.



Q.2. (Total 5 Marks)

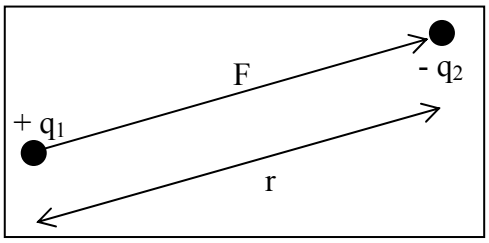
Complete the given ray diagram.



Find the position and nature of image by using the information in the above ray diagram.

Q.3. (Total 6 Marks)

The diagram shows two charges placed near each other.



Write the formula of force:

i. between these two charges.

_____

_____

ii. when distance between the charges is halved.

_____

_____

iii. when magnitude of each charge is doubled.

_____

_____

iv. when both charges are doubled and their distance becomes half.

_____

_____

v. when magnitude of both charges and distance are doubled. Write its simplest form.

_____

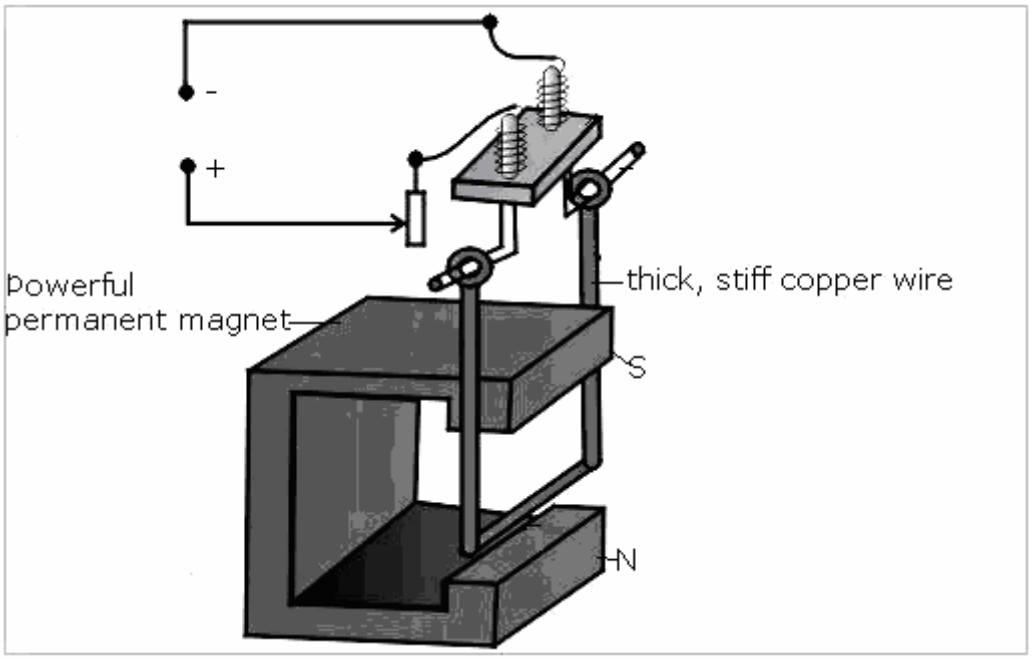
_____

_____

_____

Q.4. (Total 3 Marks)

A current carrying conductor is placed in a magnetic field.



i. What is the direction of motion in the wire?

_____

_____

ii. Determine the direction of force on the wire.

_____

_____

iii. What happens when current flows in the opposite direction to the wire?

_____

_____

Q.5. (Total 3 Marks)

Write any THREE advantages of transmitting light signals through optical fibre.

_____

_____

_____

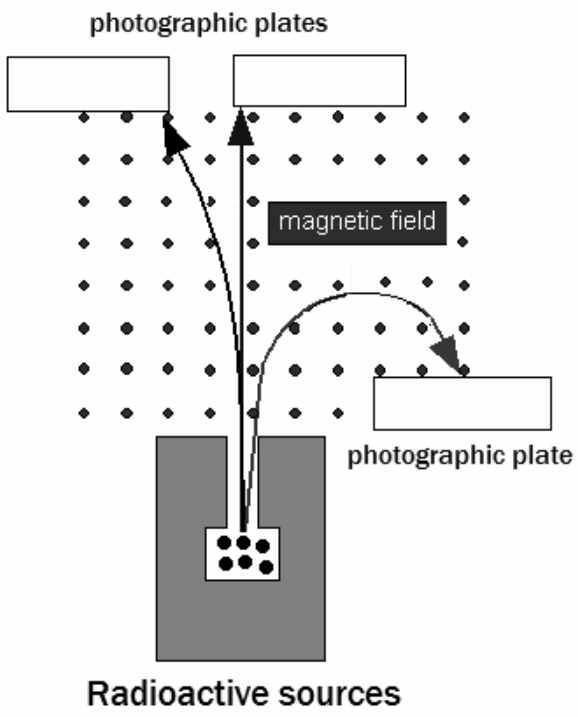
_____

_____

_____

Q.6. (Total 4 Marks)

Some radioactive sources are placed in a strong magnetic field where three types of radiation are being emitted as shown in the given diagram.



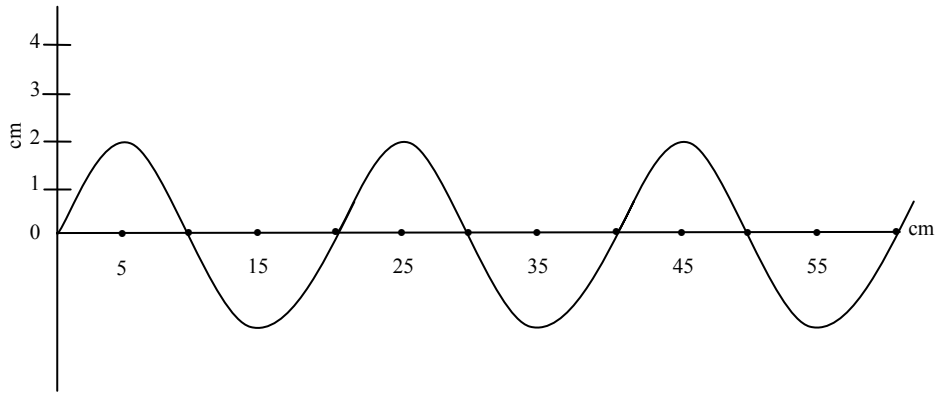
Label alpha and beta particles and gamma rays in the above diagram. Write any ONE property of each.

Alpha particle	Beta particle	Gamma rays

Q.7. (Total 5 Marks)

EITHER

a. A transverse wave is shown in the given diagram.



What is the value of amplitude and wavelength of the wave in the above figure? If the frequency of the wave is 10 Hz, then find its velocity in m/sec and time period.

OR

b. Describe any FIVE uses of ultrasound.

Q.8. (Total 5 Marks)

EITHER

a. Describe the long and short sightedness of the human eye with the help of diagrams. Also mention a way to correct short sightedness.

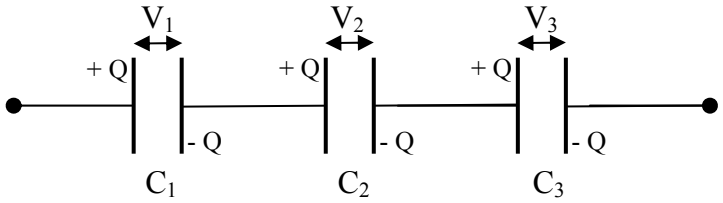
OR

b. Determine the magnifying power of a compound microscope.

Q.9. (Total 5 Marks)

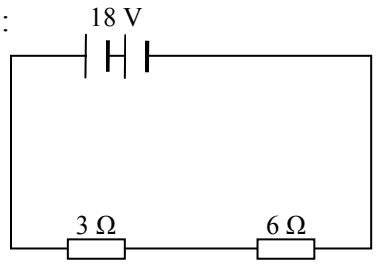
EITHER

a. Examine the given circuit diagram and identify the combination of the capacitors. Also derive an expression for the effective capacitance.



OR

b. In the given circuit diagram, what is the potential difference across:



i. 3Ω resistor

ii. 6Ω resistor

END OF PAPER

Please use this page for rough work

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