

NAME	INDEX NUMBER
SCHOOL	DATE

X-RAYS

- 1. 1995 Q28 P1**
Name the metal used to shields X – rays operators from the radiation. Give a reason why it is used. (2 marks)

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- 2. 1998 Q4 P1**
State one industrial use of X – rays

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- 3. 1999 Q23 P1**
State the energy transformation when fast moving electrons are suddenly stopped by a target in an X- ray tube.

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- 4. 2000 Q35 P1**
State and explain the effect of increasing the E.H.T in an x-ray tube on the X-rays produced.

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- 5. 2001 Q33 P1**
State the factor that determines the hardness of the X – rays produced in an X – ray tube.

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- 6. 2002 Q32 P1**
State the property of X-rays, which makes it possible to detect cracks in bones.

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7. 2003 Q25 P1

Give a reason why the target in an X-ray tube is made of tungsten or molybdenum.

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8. 2004 Q28 P1

State the difference between X-rays and Gamma rays in the way in which they are produced.

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9. 2004 Q33 P1

State the difference between hard X-ray and soft X-rays.

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10. 2005 Q33 P1

The target of X-ray tube is made of metals of high melting point. Give a reason for this (1mark)

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11. 2006 Q14 P2

State with a reason the effect on the X- rays produced in an X- ray tube, when the p.d across the tube is increased (2 marks)

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12. 2008 Q13 P2

The accelerating potential of a certain X-ray tube is increased. State the change observed on the X-rays produced. (1mark)

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13. 2008 Q19 P2

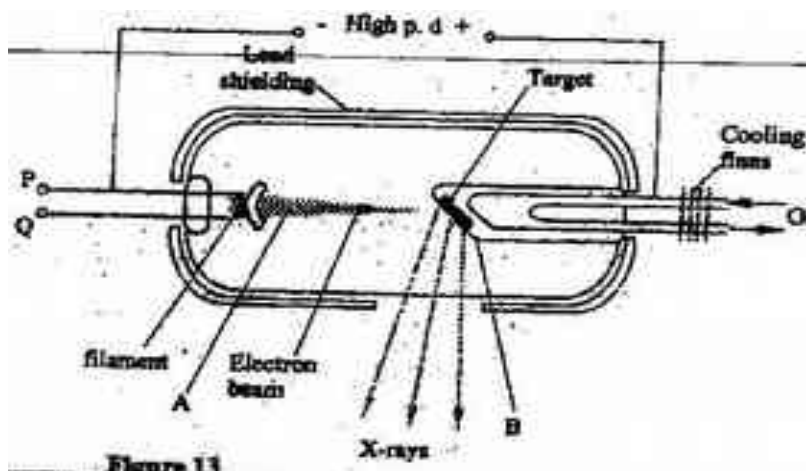
- (a) X- rays are used for detecting cracks inside metal beams
 (i) State the type of the X- rays used (1 mark)

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- (ii) Give a reason for your answer in (i) above (1 mark)

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- (b) Figure 13 shows the features of an X- ray tube



- (i) Name the parts labeled A and B (2 marks)

A.....
 B.....

- (ii) Explain how a change in the potential across PQ changes the intensity of the X- rays produced in the tube. (2 marks)

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- (iii) During the operation of the tube, the target becomes very hot. Explain how this heat is caused (2 marks)

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- (iv) What property of lead makes it suitable for use as shielding material? (1 mark)

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(c) In a certain X-ray tube, the electrons are accelerated by a Pd of 12000V. Assuming all the energy goes to produce X-rays, determine the frequency of the X-rays produced. (Plank's constant $h = 6.62 \times 10^{-34}$ Js and charge on an electron, $e = 1.6 \times 10^{-19}$ C). (4 marks)

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14. 2009 Q11 P2

In an x-ray tube, it is observed that the intensity of x-ray increases when potential difference across the filament is increased. Explain this observation. (3mark)

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15. 2010 Q12 P2

An x-ray tube produces soft x-rays. State the adjustment that may be made so that the tube produces hard x-rays.

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16. 2012 Q18a, b

Figure 18 shows the parts of an x-ray tube.

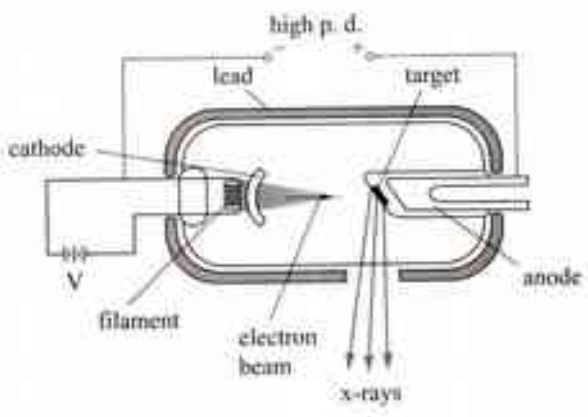


Figure 18

a) Explain why;

i). A potential difference is applied to the filament (2marks)

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ii.)A high potential difference is applied between the cathode and the anode (2marks)

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iii) Most of the tube is surrounded by lead. (1mark)

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b) State how the resulting x-rays are affected by increasing the potential difference between the anode and the cathode (1mark)

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