

7. (a) A radio contains a small step-down transformer. It changes a 230 V a.c. input into a 5.75 V a.c. output.

- (i) The letters a.c. stand for alternating current. What do the letters d.c. stand for?

.....  
(1)

- (ii) Complete the sentence.

The number of turns on the output coil of this transformer is

..... than the number of turns on the input coil.  
(1)

- (b) Large transformers are used in the system to transmit electrical energy from power stations.

- (i) In which part of the system are step-up transformers used to increase the voltage?

.....  
(1)

- (ii) Why is the voltage increased?

.....  
.....  
(1)

(Total 4 marks)

Q7

QUESTION 8 IS ON THE NEXT PAGE



N 2 4 1 2 4 A 0 1 1 2 4

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### Question 6

	Answer(s)	Extra information	Mark(s)
(a)	0.025 (m <sup>2</sup> )	Or 0.25 x 0.1 (1) 10 x 25 (1)	2
(b)(i)	pressure = force ÷ area	Or $p = F \div A$ Or any transposed version	1
(ii)	4800 (Pa) (2)	or 4.8 kPa (2) or 120 ÷ 0.025 (1) may ecf from (a) or sfs	2

**Total 5 marks**

### Question 7

(a)(i)	Direct current		1
(ii)	(a fortieth) less		1
(b)(i)	after the generators	or before the transmission/power line(s) any correct reference to location	1
(ii)	to decrease the loss of energy/heat/power accept 'less voltage loss in transmission'	or to decrease the current  or to increase the efficiency or to increase distance of transmission	1

**Total 4 marks**

### Question 8

(a)(i)	all points plotted correctly (2)	four points plotted correctly (1) do not credit ○ blobs which are 2 mm or more ○ points which are more than 1 mm out in any direction	3
(ii)	2 (hours)	may ecf from graph	1
(b)	1 000 000 (Bq)	1 x 10 <sup>6</sup> / million	1

**Total 5 marks**

### Question 9

(a)(i)	use of $F = ma$ $a = 1440/60 = 24$ m/s <sup>2</sup>	ignore minus sign N/kg	1 1 1
(b)	arrow : left to right  in correct place	judged horizontal or parallel to seat belt seen anywhere arrow or its extension goes through region marked as 'seat belt' <b>dop</b>	1 1
(c)	vector	not 'physical'	1

**Total 6 marks**

### Question 10