

Section 1 (20 marks)

Question	Definitive Mark	Comment
1. (a)	1/1	Correct statement provided.
(b)	2/2	Accepted maximum tensile load strength.
2. (a)	0/2	The candidate did not explain the advantage.
(b)	0/2	The candidate did not explain the disadvantage.
3. (a)	2/3	<p>A basic understanding of function is required to allow analysis and calculation of a switch in an application including an explanation of suitability for that application.</p> <p>The candidate showed understanding of voltage operation and current flow although voltage flowing was missed.</p>
4.	1/3	Same skill listed three times.
5.	2/4	<p>One reasonable and one borderline statement provided for the role of engineer 2 given. However, for engineer 1 the candidate did not differentiate between knowledge, skills and role.</p> <p>NB: Engineering branches and sub-branches are ever evolving and so cannot be definitive in an answer.</p>
6.	2/3	5% subtracted rather than added.

Section 2 (70 marks)

Question	Definitive Mark	Comment
7. (a) (i)	1/3	One mark given for A + B or C. Brackets and inversion are in the wrong place therefore full marks could not be awarded.
(a) (ii)	3/4	Correct conversion with A not given as a follow through which demonstrates the same understanding. No simplification provided.
(b)(i)	2/2	Correct statement provided.
(b)(ii)	1/4	Correct function of comparator relating to the application given.
(c)	1/2	Explanation of Mark/Space given. Speed change was not clearly explained.
8. (a)	3/4	Full marks could not be awarded as the total load was not divided by three to give load per metre.
(b)(i)	3/3	Correct working and answer to this focussed task.
(b)(ii)	2/3	Mistake with inner area value then followed through.
(c)	3/5	75% applied wrong way round and the height used was incorrect.
9.(a)	2/3	2 marks awarded for the benefit points given. No further marks can be awarded for 'save fuel' as the not distance will be very similar.
(b)(i)	2/2	Correct steps and answer.
(b)(ii)	2/2	Correct steps and answer.
(c)	4/4	Correct steps and answer.
(d)	1/4	1 mark given for the attempt to calculate the design op-amp.
(e)	4/5	The candidate cannot be awarded full marks as factor of safety is used the wrong way.
10. (a)	NR/2	No response.
(b)	7/7	Very good explanation of circuit function.
(c)	1/3	Position is correct but the candidate did not explain why.
(d)	4/8	Marks gained for 320ms, Mark and Space and decisions.
Total marks	56/90	